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Abstracts

(An explanation of the classification used in the Digest was published in the January (1949) issue (Vol. 6, No. 1) on the page facing the Index to Authors)

[1]

FIBERS A

Natural fibers A 1

Abrasion of fibers. Vibratory ball mill for more efficient grinding. Anon. *Tech. News Bull. Natl. Bur. Standards 34*, 140-41 (Oct. 1950).

In connection with studies of deterioration of cotton fibers, a ball mill was constructed which reduces fibers in 30 min. to a size under 10 microns with negligible degradation or contamination of the cellulose. Grinding is accomplished by vibrating the mixture of steel balls and cotton, while maintaining a slow rotation to keep the charge mixed.

Blending of mixing fibers. H. L. Slater. *Textile Weekly 46*, 1384, 1386, 1388 (Nov. 24, 1950).

Hand mixing of cotton blends by sandwich methods was established by textile writers 60 years ago. The present article recommends—for British Mills—a return to some of these methods. The article states that, while British mills buy poorer quality cotton than American mills, they nevertheless use less opening and blending.

Cotton goes into battle. Anon. *Am. Wool Cotton Reptr. 64*, 105, 116-18 (Nov. 23, 1950).

Cotton fabrics used for military purposes vary from clothing, knapsacks, and tents to tires, machine gun belting and gas masks. They are essential in more than 11,000 military uses.

Peanut protein fibers — pilot scale plant. Jett C. Arthur, Jr. & Hugh G. Many. *Am. Dyestuff Reptr. 39*, 719-22 (Oct. 30, 1950).

The construction and the operation of a pilot scale fiber spinning plant are described. Typical operating data for the plant when used to prepare peanut protein fibers are presented. The fiber production capacity of the plant may be easily varied from 50 to 800 grams of fiber per hour per spinnerette, applying a stretch of 200 to 1500 percent

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to the fiber during its preparation. Fibers produced with this machine have tensile strengths of 0.86 grams per denier and have been successfully knitted.

Pre-conditioning of cotton. Anon. *Textile Weekly 46*, 1394, (Nov. 24, 1950).

Emulsifiable oils used in conditioning cotton fiber have caused a reduction of card room dust, from 100 particles per unit of volume to 25 particles per unit of volume. Small quantities (0.2% on weight of cotton) of a water emulsion of a highly refined oil are employed. The base oil is a white oil, non-toxic, and rust-preventative. Other advantages cited for oil conditioning of cotton: less neps, improvement in yarn strength.

"Super-cottons". George S. Buck, Jr. *Textile Bull. 76*, 45-6 (Nov. 1950).

"Super-cottons" are triple-hybrids that spin well, have low nep counts during processing, and possess tensile strengths of 100 to 130 thousand pounds per square inch. Yarns made from their fibers have 25 to 75 percent greater strength than yarns made from upland cotton. Additional luster is also a characteristic, and there may be more improved properties which have yet to be evaluated.

If the triple-hybrids' potential character holds up during the next six months of test processing in 25 cotton mills, there may be several ways by which they can show value to the cotton mills. Low neppiness and good yarn appearance are obvious values. But higher fiber and yarn strength may improve processing conditions, such as reducing ends down in spinning and permitting the use of lower twists. Blending with below average cottons may upgrade deficient constructions to acceptable ones. New cottons may also replace expensive long-staple cotton now largely imported. They also offer obvious advantages to the customer. But there is a balance of qualities that perhaps even further improvements in "super-

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cottons" cannot exceed. This balance of qualities means that when one property is improved, perhaps it must be done at the expense of another.

The mineral fiber of the textile industry — Asbestos. Myril C. Shaw. *Amer. Assoc. of Tex. Tech. 5,* 253-57 (Dec. 1950).

Historical highlights of asbestos fiber are outlined. The most important and widely used asbestos mineral is chrysotile, and the next important is Crocidolite, so-called "Blue Asbestos," Both may be fiberized, though chrysotile works better on conventional textile machinery. Textile asbestos fibers are graded: #1 crude fibers which are ¾ inch staple and longer; #2 crude fibers which are ⅜ to ¾ inches in length; #3 crude fibers which range from ⅛ to ⅜ inches. Asbestos fabrics are produced in six grades, depending upon the inorganic fiber content. Commercial Grade asbestos textiles contain 75%-80% asbestos, the remaining 20%-25% being an organic fiber. Underwriters Grade contains 80-85% asbestos, with 15-20% organic fiber. Grade A contains 85-90% asbestos, with 10-15% of an organic fiber. Grade AA has 90-95% asbestos, as opposed to 5-10% organic. Grade AAA contains 95-99% of asbestos, with 1-5% organic fiber. Grade AAAA contains 99-100% of asbestos, with 0-1% organic fiber.

The sampling of cotton bales as related to marketing. (U. S. Department of Agriculture) R. C. Soxman & George E. Gaus. (Nov. 1950).

See front section.

Wool chemistry. Changes produced in wool by processing. S. Blackburn, Wool Industries Research Assn. *Chemistry and Industry 44,* 718-23 (Nov. 4, 1950).

Modern views of the chemical structure of wool explain the observed differences between alpha and beta-keratin and account partially for the changes observed during processing. The principal tools used to investigate changes in wool are analysis for specific amino-acids, staining techniques, physico-chemical methods, and especially partition chromatography. Changes occuring during weathering, scouring, carbonizing (sulfuric acid treatment) bleaching, setting, and shrinkage reduction by chlorination or by enzyme treatment are discussed. The 59-entry bibliography on wool chemistry is made up largely of British references.

Wool to continue as principal component of combat uniforms. Herman Feldman. *Am. Wool Cotton Reptr. 64,* 39, 41, 51 (Nov. 23, 1950).

The new wet-cold combat uniform of the army is based on the layering principle with looseness of clothing and provisions for ventilation stressed. The uniform is made up of loose-fitting cotton and wool undershirt and drawers, a wool shirt-coat, a pile liner, and the cotton field jacket. For the lower body, the pajama type underdrawers, wool trousers, and cotton field trousers are used. Constant improvements are being made through research, testing and field experience.

Artificial fibers A 2

Alemite "oil mist". Anon. *Am. Wool Cotton Reptr. 64,* 33 (Dec. 7, 1950).

Alemite "Oil Mist" is a system of constant and automatic delivery of lubricating oil to all types of machine bearings in air-borne microscopic particles through tubing and without measuring devices. The only volume determined is the bearing requirement. Mfr: Stewart-Warner Corp.

Defense program offers synthetics profitable position. Anon. *Am. Wool Cotton Reptr. 64* 43, 45 (Nov. 23, 1950).

Synthetics will form a large part of defense requirements because of their regularity in yarns and fabrics, less variation from required standards, and fewer failures through variation in service. Uses of synthetics in parachutes, cargo chutes, tire yarn, linings for garments, banner cloth, braid, etc. are noted.

Fiber spinning apparatus and method. Fred A. Bluhm, Dudley W. Hayes & Albert H. Zeigler (to Armour & Company) USP 2 529 674, Nov. 14, 1950.

In fiber spinning apparatus, a frame, a hopper mounted therein, means for rotating a portion of the fibers in the hopper to form a fiber strand, and means for rotating the strand at a different rate of rotation to the rate of rotation of the hopper to form the strand into a rope body.

Spinning and knitting dynel. Anon. *Am. Wool Cotton Reptr. 64,* 13-14, 23 (Nov. 16, 1950).

Facts in connection with Carbide and Carbon's new fiber dynel, presented by a panel of the company's executives are reviewed. Opening, picking, carding, drawing, spinning, dyeing, finishing, industrial and woven application, and knitting dynel are discussed. The strength, natural crimp or curl, and irregular shape of the fiber make processing of the fiber easy.

Synthetic protein fibers. Hans Gunther Frohlich. *Melliand Textilber. 31,* 663-66 (Oct. 1950); *in German.*

This article summarizes recent literature dealing with the production of synthetic protein fibers, and details the processes for the production and stabilization of casin, Ardil and Zein fibers.

Textralizing process imparts permanent crimp to fibers. J. H. Pfau & W. D. Hay. *Textile World 100*, 106-7, 155 (Dec. 1950).

Crimping of fibers by the process called "textralizing" effects two changes in the fiber. The crimped fibers bulk to greater proportions, thus giving more warmth in apparel fabrics, and providing improved "cover" in carpets and napped goods. The crimped fiber also is said to have increased energy-absorption capacity, a property better described as a "springy" effect. This second property improves wear resistance, since the action of wear is less abrasive, and the reaction to wear more spring-like.

Mechanical pressure and water setting are used to crimp fibers in sliver form. Production rate per crimping unit is 400 lb.-per hour. Process developed by Alexander Smith & Sons Carpet Co., Yonkers, N. Y.

YARN PRODUCTION B

Fiber preparation B 1

Cross-dyed rayon blend. Anon. *Am. Wool Cotton Reptr. 64*, 9-10 (Dec. 7, 1950).

Blends of fibers offer increased fabric possibilities since, by different processing methods, fibers from short to long lengths, of fine to coarse diameter, with different chemical and physical characteristics can be made into yarns which in turn can be woven into fabrics of one particular construction and then dyed into a wide variety of effects. Fabric characteristics of blended fiber fabrics depend on the denier, length, and percentages of the different fibers; fabric construction; size and twist of the yarns; the number of ends and picks per inch and weight of the fabric; and the light reflection capacities of fibers. A cross-dyed rayon blend is analyzed containing viscose-acetate blend in both warp and filling. The acetate fiber is white and the viscose fiber colored, the result of cross-dyeing.

Mill techniques — S. T. A. Meeting. Anon. *Textile Bull. 76*, 61-2, 64 (Nov. 1950).

Conference of mill men developed information on wide variety of questions. Increased pressure from pneumatic pressure systems on pickers was recommended as superior to old system, principally because they made more uniform laps and increased yards. Ball-bearing lickerins were said to be satisfactory and to operate at low cost.

Continuous strippers prompted a variety of answers: not satisfactory; required increased maintenance; too much grinding.

Six to eight per cent was said to be a average percentage for reworkable waste, about 4 per cent of which was from cards. Methods and schedules of cleaning, overhauling, and spindle plumbing were suggested for the spinning room.

Carding and combing B 2

Controlling card flat strip waste. V. E. Oleman. *Textile Bull. 76*, 68-9 (Nov. 1950).

Changing the setting of the stripping plate from 0.034 to 0.024 resulted in a reduction of flat-strip waste, caused a larger proportion of short fibers to be removed, and caused less good fibers to be taken out. For the 24-gauge setting, the average percentage of flat strips was 2.98; for the 34-gauge setting, the average was 3.68 per cent.

The total waste removed by the card was less on the closer setting. Followup tests on yarn showed that the change in stripping-plate setting had no appreciable effect on breaking strength or size.

Fiber control at draft rollers. F. Wooding. *Textile Weekly 46*, 1380, 1382 (Nov. 24, 1950).

Experiments provide proof that there are no serious difficulties in obtaining a simple skid-preventing top feed roller for all roller drafting machines. This top roller would retain all the characteristics of the cushion roll and yet would be prevented from overrunning the surface speed of its own bottom roller by means of a small pair of deeply toothed spur wheels, one fitted to the bottom steel roller and the other fitted on to the end of the top roller.

Such a top roller might eliminate the high frictional slippage which takes place during drafting. A principal weakness of present roller drafting is that the bottom steel roll is positively driven, while top roller is frictionally driven (by surface contact) and by power transmitted to the roller through the frictional grip of the bulk of fibers upon themselves. This frictional grip is further complicated by the pull exerted by the greater surface speed of the succeeding pair of rollers.

Maintenance of woolen cards. Wm. J. Crofts. *Textile Industries 114*, 92-4, 118 (Dec. 1950).

See front section.

Mill techniques — Alabama Supervisors. Anon. *Textile Bull. 76*, 64, 66 (Nov. 1950).

Mill men swap practical "know-how" information. Automatic ceiling cleaner saved $60-$70 per week at Avondale Mills' card room; pneumatic rack control on pickers eased the work of picker operator, increased production 26 per cent at Bemis. At Pepperell, it increased production 3½ per cent, reduced doffer's time 42 per cent. Underframe cleaners in spinning were said to be operating satisfactorily, in some cases reducing end breakage, in all cases eliminating the necessity for "blowing out" and cleaning underneath spinning frames. Automatic bunch builders were recommended.

New continuous stripping motion improves carding efficiency. Anon. *Textile Recorder 68*, 132-3 (Nov. 1950).

See front section.

Seven steps to nep control. Condensed from general news column, *Daily News Record*, (Dec. 1, 1950).

See front section.

Strong discusses theory of carding. Anon. *Am. Wool Cotton Reptr. 64*, 25 (Nov. 16, 1950).

Brief notes on talks given by Peter M. Strong and Andre Varga on the theory and principles of carding at the Second Canadian Textile Seminar are given.

Wool carding synthetic rubber condenser rubbers. Anon. *Textile Mfr. 76*, 528-9 (Nov. 1950).

Slubbings of excellent quality are produced by wool cards equipped with condenser rubbers made from synthetic rubber which is highly resistant to oil and oleines. Original installations of the condenser rubbers gave satisfactory results and obtained, in some instances, a package increase of 30% per bobbin. The advantages arises from the method of condenser rubber construction, the absences of joints and rivets, and the smooth surface of synthetic rubber.

Some earlier installations reported difficulty in obtaining good slubbing after the new condenser had been idle for a night or week-end. Research showed that some types of oleines were affecting the synthetic rubber. A newer synthetic rubber was then employed, so that present condenser rubbers repel oleines.

Worsted carding. Anon. *Platts Bulletin 7*, 84-93 (1950).

See front section.

Drafting and roving B 3

Apparatus for converting bundles of continuous filaments into a sliver or roving of staple fiber. Cecil Rhodes & Isaac N. McCart. USP 2 531 787, Nov. 28, 1950.

Apparatus for producing a sliver or roving of staple fiber from a bundle of continuous filaments, comprising a stationary frame, a conveyor for the staple fiber associated with the frame, a carriage reciprocable longitudinally of the frame above the conveyor, feed rollers carried by the carriage, gearing between the feed rollers and the frame for causing rotation of the rollers during movement of the carriage in one direction thereby to feed and lay on to the conveyor a bundle of continuous filaments in spread condition, means carried by the frame for holding the end of the bundle upon the conveyor during the laying of the filaments thereon, means for severing the laid length of filaments prior to the return movement of the carriage, the gearing including means for rendering the feed rollers inoperative during such return movement, means for releasing the holding means during the return movement of the carriage, the conveyor being capable of advancement longitudinally of the frame during such return movement of the carriage so that each length of filaments is laid on the conveyor in overlapping relation with the preceding length.

Bobbin holder. Robert M. Blais (to Saco-Lowell Shops) USP 2 527 391, Oct. 24, 1950.

A holder for a bobbin of a type provided with a magnetizable member at its upper end portion and an axial hole in the upper end, the holder comprising a vertical guide member adapted to enter the hole in the bobbin to center the latter relatively to the holder, a magnetic unit mounted on the member, the unit comprising a tubular magnet and annular pole pieces extending from the respective poles of the magnet and terminating in concentric tips positioned to engage simultaneously the magnetizable member on the bobbin and thereby to support the bobbin in a vertical suspended position, and means cooperating with the member to support the magnetic unit for rotation around the axis of the member.

Drawing roll. Frank H. Stearns (to B. B. Sales Co.) USP 2 530 094, Nov. 14, 1950.

In a textile drawing roll having roll sections with axial openings at the opposite ends thereof, and a coupling member in the form of an arbor having longitudinally spaced end portions each of which is adapted to be seated snugly within a respective

one of the roll openings; the improvement which consists in the provision of bearing means for rotatably supporting the roll, the bearing means comprising a unitary cylindrical sleeve surrounding an intermediate portion of the arbor between the end portions with the opposite end portions thereof extending over the end portions of the roll sections so as to seal off the bearing area, and rotatable bearing elements disposed between the arbor and the sleeve.

Dynamic balance indicator for testing textile bobbins. Anon. *Can. Textile J. 67*, 54 (Dec. 8, 1950).

Universal Winding Company's Atwood Division has recently developed a new instrument, the Dynamic Balance Indicator, which permits bobbin unbalance measurements to be made accurately, quickly and inexpensively within the mill, according to a recent announcement by the company.

The new indicator, it is said, is a compact instrument which consists of two spindles that can be driven alternately at normal spindle speeds plus an electronic system of measuring the unbalance of the bobbin running on either spindle.

Spindle bolster vibration caused by bobbin unbalance is picked up by a coil and converted into an electric current. This current, the company states, which is then amplified by an electronic circuit, indicates the degree of bobbin unbalance on a meter in the face of the instrument.

Flyer presser maintenance. Anon. *The Saco-Lowell Bull. 22*, 27 (Oct. 1950).

Uniform tension on the roving frame is achieved by using properly designed cones and good flyers which are in balance, fit properly in the let-on, and which are being run with properly shaped pressers. Linear irregularities in the roving may be caused by deformed pressers or out-of-balance flyers. Correct flyer shape and a proper curvature of the paddle arm are necessary in order to operate with the designed arc of contact from the presser to the bobbin. If this arc is deformed, a poor bobbin will be built; and uneven roving will be produced.

Other check points on the flyer which should be examined periodically are: the nose of the flyer and the inside of the hollow arm, both of which should be highly polished since roughness catches fibers and produces irregularity. Other serious flyer defects: worn ends on the hollow arm, worn keys which allow the flyers to rest too low on the spindle, worn lugs, and improperly adjusted slots in the hollow arm.

Periodic flyer inspection and overhaul are necessary. Flyer pressure repair units are available.

Production problems discussed at Draper. Anon. *Textile Industries 114*, 101-2 (Dec. 1950).

See front section.

Roving frame maintenance. P. M. Willingham. *The Whitin Review 17*, 11-14 (Sept-Oct. 1950).

See front section.

The Whitin bobbin tester. Anon. *Whitin Review 17*, 9-10 (Sept.-Oct. 1950).

The Whitin bobbin tester enables the mill to control the general level of bobbins, pirns, or spools in respect to concentricity of the outside with the inside holes. Crooked or out-of-balance bobbins cause vibrating spindles, ends down, loss of rpm. with soft twist, oil pumping, and excessive bolster wear. Occasionally, full packages will hit the rings and damage the yarn. Bad bobbins should be taken out of production. Nearly every mill has bad bobbins, probably from 10 to 50% of their total bobbins.

With the new tester, an operator can inspect more than 400 bobbins an hour. It can be used for cotton, wool, worsted, or synthetics, but with different tolerances for each type of manufacture. The small testing machine operates on a 110-volt, 60-cycle, A. C. line and is ready to use upon delivery, simply by plugging into a receptacle.

Spinning B 4

All-steel top for McMullan spindles. Anon. *Saco-Lowell Bull. 22*, 23-5 (Oct. 1950).

High humidity in spinning room affects wood fibers comprising quill of wood top spindles. Quills may swell, split, or crack, although they have been treated to resist changing atmospheric conditions. McMullan has adopted a steel sleeve in place of wooden quills. The spindle with all-steel quill has more resistance to distortion than a wooden quill. Atmospheric conditions cause no swelling, splitting or cracking. Trial installations show that the new all-steel top spindle gives better service with less maintenance.

In addition to supplying new spindles, McMullan has developed a method of replacing wooden sleeves with all-steel tops. The wooden quill is removed; the ferrule and acorn are machined to fit the steel tube which is pressed in, and the top finished to come flush with the ferrule. The lead angle of the acorn is cut back so the paper tube

can be seated correctly. The main difference between the all-steel spindle and the conversion is the original cast iron whorl used in the latter. In both spindles the blades are hardened and tempered to a high degree of accuracy. New all-steel top spindles and wooden-sleeve spindles of the same size can be used interchangeably.

A synchronized electronic stroboscope for ring twisting. R. Van Nes. *Enka Breda Review 4*, 117-21 (1950); *in Dutch.*

In this article an electromagnetic synchronizer is described, which in combination with an electronic stroboscope enables the investigator to observe balloon and traveller on ring twisting machines in any desired position along the ring periphery, independent of the momentary number of revolutions of balloon and traveller. In this way compartive observations can be made as regards the shape and the dimensions of the balloon, the position of the traveller, etc. The observation can be recorded photographically in a simple way.

Brake for textile mill spindles. Charles E. Miller & Floyd H. Sweet (to Marquette Metal Products Co.) USP 2 532 261, Nov. 28, 1950.

A textile spindle brake for a spindle supported on a slide adapted to be latched to a fixed support in a position wherein the spindle is clear of its driving band, the brake comprising a spring plunger device slidably carried by the fixed support and always presenting the same friction of the spindle, the braking face yieldingly engaging the circular surface when the slide is latched in the position.

Check these pointers to help you in handling dynel. Anon. *Textile World 100*, 126-7, 137 (Dec. 1950).

Dynel is an easily spinnable fiber because of three properties: (1) its strength—which exceeds 2.5 gpd., (2) its natural crimp; and (3) its irregular cross section.

On the cotton system, 50s yarn is made from 2-den., 1½-in. dynel; and 20s from 3-den., 1½-in. dynel. Few changes are made in opening and picking. More pressure on calendar rolls, more air through condenser screens, and the use of split-lap preventers are the rule.

Correct settings on the card permit less frequent stripping. Cylinder-to-flats setting of 0.0015 in. produces a good web and minimizes cylinder loading. Slow lickerin speed of 250 rpm. also reduces the possibility of cylinder loading. A recommended 65-grain sliver takes the regular trumpet normally found on the card.

Condensers between drawing rolls permit the fibers to spread out to 2⅞ inches only and prevent formations of feather edges that cause lap-ups. 70 to 80% evenness variation (Uster) characterize single-drawn dynel sliver. Roving twist multipliers are based upon a 1.1 standard for 1½ in. staple. High-draft roving and spinning equipment are used. Spinning twist multipliers: 2½ for coarse counts; 3½ for fine knitting yarns; and conventional warp twist multipliers.

Continuous process for the production and treatment of artificial threads. Sydney W. Barker (to Lustrafil Ltd.) USP 2 525 760, Oct. 17, 1950.

Apparatus for the continuous manufacture of thread comprising a pair of revolving rollers whose working surfaces are mutually inclined to provide means for storing and advancing the thread in a helical path about the rollers.

How much power does a spindle use? Anon. *Textile World 100*, 122-3 (Dec. 1950).

See front section.

Means for preventing singling in spinning operations. Joseph C. Boyd (to William D. Dodenhoff) USP 2 528 297, Oct. 31, 1950.

A device for preventing singling comprising a support, a pair of elongated upstanding members, pivoted at their lower ends to the support, yarn engaging and breaking teeth projecting inwardly from the members adjacent the upper portions thereof, and a pair of yarn guideways lying between the members, the point of pivoting of the members being such that the upstanding members engage the sides of runs of yarn traveling through the guideways with the upstanding members tipped slightly past center inwardly toward the guides.

Means for preventing singling in spinning operations. Joseph C. Boyd (to Wm. D. Dodenhoff) USP 2 528 298, Oct. 31, 1950.

A device for preventing singling comprising a support, a pair of elongated upstanding members, pivoted at their lower ends to the support, yarn engaging and breaking teeth projecting inwardly from the members adjacent the upper portions thereof, and a pair of yarn guideways lying between the members, the point of pivoting of the members such that the upstanding members engage the sides of runs of yarn traveling through the guideways with the upstanding members tipped slightly past center toward the guides and means upon the members and engageable by

the yarn for automatically moving the members to past center position and against the yarn under the influence of tension upon the yarn.

P. S. C. system of spinning and twisting. Harold V. Farnsworth. *Can. Textile J. 67*, 57-8, 60, 62, 66 (Dec. 8, 1950).

The P. S. C. Spinning Frame is double-sided with 64 containers per side or a total of 128 containers, which are either 3½ or 4⅛ inches diameter, depending upon the counts to be spun. It is 5⅝ inches pitch and occupies a floor space of 34 feet 9¼ inches overall length by 4 feet overall width. The usual tin cylinder has been replaced by a central driving shaft on which are carried die cast aluminum pulleys. All the pulleys are dynamically balanced to run smoothly up to 2500 revolutions per minute.

The containers being of supreme importance, over a year was spent trying out every known material and type of bearing, including individual motor drive by fractional horse power motors. They are now constructed of high tensile hiduminium, which will run up to 20,000 revolutions per minute without trouble.

These containers are tested at 20,000 revolutions per minute, but it is not suggested that spinning be carried out at these speeds. Tests have shown that a speed of 11,000 to 12,000 revolutions per minute for counts up to 24s in the 4⅛ inches diameter containers, and up to 16,000 revolutions per minute for the 24s and finer in the 3½ inches diameter containers is practical. The finest counts can be spun into the larger container, but the lower speed of this container would mean a sacrifice in production.

The drafting arrangement on the P.S.C. Spinning Frame is of the normal type known to all worsted spinners, but the angle of the roller stand is set at 75 degrees. In the past, various angles have been tried, but on the P.S.C. the twist is inserted along the axis of the thread, ballooning is eliminated, so that the wire board guide, necessary on all other types of spinning to prevent the thread ballooning into the nip of the roller, is not necessary; neither is the "lay-on" of the thread on the face of the low front roller required.

The spinning of yarn into a container is comparatively simple. It is much more difficult to extract the spun rayon from the container because, unlike wet continuous filament rayon, the cake of worsted yarn collapses when the container is stopped and the mass of snarled inextricable yarn has no commercial value. Various ways were tried to recover the yarn, such as collapsing onto expandable swifts, etc., but these were not considered practicable and were abandoned.

The ability to remove the dry spun yarn from the container in a usable form of package in one of the fundamental features of the P.S.C. system.

Reduction of ring wear. Anon. *Saco-Lowell Bulletin 22*, 6-10 (Oct. 1950).

See front section.

Spinning nylon staple on cotton and American systems. Anon. *Rayon & Syn. Tex. 31*, 71-3 (Dec. 1950).

Nylon yarn-count limits are 15s cotton count for 6-denier and 30s for 3-denier staple. Finer counts should be made from 1½ denier or blends of 1½ and 3 denier. Cotton and American system mills usually run 1½ and 3 denier staple, with staple lengths of 1½ inches on the cotton system and up to 3 inches on the American system. Drafting is kept as low as possible because of the presence of an occasional long fiber in the staple. Low tension is maintained during processing to minimize straightening of the crimp and stretching of the fiber, and to reduce uncontrolled drafting. Some loftiness in the yarn may be sacrificed by applying twist sufficient to anchor the fibers—otherwise, yarns may tend to pill when used in fabric form.

Light laps, speeded up calendar section, high fan and beater speeds characterize picking operation on nylon. Fringe feed rolls, rayon type lickerin, 160-180 rpm. lickerin speed, flat-top carding of 1½ inch staple, roller top carding of 2-3 inch staple, the use of fancy roll on both types of carding, low doffer speeds, card drafts of 100 for 50-grain sliver and lighter sliver for fine yarns, reduced tension on web or adjustment of doffer comb and calendar, and frequent control testing are recommended.

Two drawing processes, conventional drawing draft and roll setting, with the possibility of heavier weights on rolls are other nylon processing practices. Roving twist multipliers range from 0.6-0.8; drafts from 4 to 6; front roll speeds are low, and large front rolls are helpful. Heavier weights on top rolls and less tension between front roll and spindle are desired. Conventional spinning drafts for nylon range from 6 to 8.

Spinning end breakage. W. E. Baltz. *Melliand Textilber 31*, 666-68 (Oct. 1950); *in German.*

The author examines the point whether an abnormal drop in the speed of a traveller or a sudden stoppage may be the chief causes of thread breakage, with the result that up to the present

there is a lack of material sufficient to arrive at a proof, and that yarn breakages may be ascribed in an essential degree to other factors also.

Spinning tension measured continuously. Paul C. Wolters. *Textile World 100,* 153-4 (Dec. 1950).

A new tensiometer is essentially a group of thread guides mounted so that their positions are affected by yarn drag. By combining with a photoelectric recorder, the mill obtains a permanent record of tension in the yarn. The meter may also be used on drawing frames to study and determine roll pressure. Accuracy of calibration is claimed within 3%. Normally, the tension of ten spinning ends is measured, but the tensiometer can also be used for studying individual spindle performance. Mfr: General Electric Co.

Splicing plied yarns. Horace L. Pratt. *Textile Industries 114,* 87-9 (Dec. 1950).

Mills manufacturing heavy plied yarns for industrial fabrics usually have to make these yarns in definite yardages. These lengths vary with the length requirements of the fabrics being woven, and the twisters on which the yarns are plied are equipped with yardage counters, some of which automatically stop the frames when the desired length has been twisted.

But all ends on the twister do not produce continuously, and incorrectly set or faulty knockoffs cause short doffs. All short lengths of yarns must be joined, preferably by an actual splicing method shown by a series of photographics and captions, but in some cases by a plied yarn falser splicer, the use of which is also shown photographically. The true splicer can be made in the mill machine shop; the machines are no longer on the market.

STA members consider carding and spinning. Anon. *Am. Wool Cotton Reptr. 64,* 15, 17, 35 (Dec. 7, 1950).

The sessions on carding and spinning at the fall meeting of the Northern North Carolina-Virginia Division of the Southern Textile Association are reported in the form of questions and answers.

Textile drafting and spinning. Edward G. Whittaker (to Anselm and Co.) USP 2 532 275, Nov. 28, 1950.

In combination with the table and roll stands of a textile drafting and spinning frame having at least three pairs of drafting rolls, bearings on the stand for the lower rolls, cap bars pivoted on the stand carrying upper back roll means for a plurality of lines of draft, and for each line of

draft a front and intermediate top roll assembly unit comprising a cradle having relatively fixed bearing formations for the front and intermediate top rolls and separate loading means for each cradle unit.

Textile machine. Arthur G. B. Metcalf. USP 2 531 944, Nov. 28, 1950.

For machines for the weaving, spinning and the like of filamentary material, filament-break detecting means comprising; an electron discharge device having an anode, cathode and control electrode; an output circuit including the anode and cathode; an input circuit including the cathode, the control electrode, and a capacitance; a plurality of electrical impedance controlling means arranged in mutually parallel connection in the input circuit and each supported by an individual filament in a predetermined position but adapted upon breakage of the supporting filament to assume and maintain a new disposition and thereby alter the electrical character of the input circuit; operator means adapted to be energized by the output circuit upon breakage of any one of the filaments; and means controlled by the operator means for interrupting a power circuit and for providing a thereafter continuing indication that the breakage has occurred.

The relation between the staple dimensions and the spinning limit of rayon staple fiber. A. M. Klompe. *Enka Breda Revue 4,* 110-12 (1950); *in Dutch.*

A series of spinning experiments for determining the spinning limit of a series of rayon staple fiber types is described. On the basis of the results achieved it is discussed as to how far the spinning of a staple fiber type can be calculated from the known spinning limit of another staple fiber type.

Thread guides. A. Geiger. *Melliand Textilber 31,* 671-3 (Oct. 1950); *in German.*

The article opens with a general reference to the importance of the thread guide for the whole textile technique and the author goes on to summarize the various materials that can be employed for making these guides, of which there are large numbers, among which Degussit, a ceramic oxide, occupies a very prominent place, excelling all others in its capacity of resistance to extremely high chemical and physical action. There follow details of the productoin of Degussit together with a description of its chemical and physical properties, its constructional pecularities, and the question of its economic applica-

tion is also dealt with.

Top roll for textile drafting mechanisms. Louis M. Cotchett. USP 2 525 592, Oct. 10, 1950.

A top roll for drawing mechanisms comprising a shaft, two sleeves encircling the shaft and spaced axially apart, two sets of antifriction bearings, one for each sleeve, supporting the sleeves in coaxial relationship to each other on the shaft, each set of the bearings including two oppositely tapered cones and the outermost of the cones being slidable on the opposite end portions of the shaft, the end portions of the shaft being expansible, screw-threaded means operable from the ends of the roll to expand either end of the shaft into locking engagement with its respective cone, and a third sleeve encircling the shaft between the aforesaid sleeves and spacing the latter apart, the third sleeve being constructed for the contact therewith of the saddle by which the top roll is weighted.

Top roll for textile drafting mechanisms. Louis M. Cotchett. USP 2 525 591, Oct. 10, 1950.

A top roll for drawing mechanisms comprising a shaft, two sleeves encircling the shaft, spaced axially apart, and both supported on antifriction bearings, each of the bearings including two opposed tapered cones, the inner cones of the two bearings being free to slide axially on the shaft, a collar loose on the shaft between the inner cones and adapted for the engagement therewith of a weighting member, and a spring interposed between the inner cones and tending to separate them axially from each other.

Twister stopping device. Ingham S. Roberts (to American Viscose Corp.) USP 2 531 531, Nov. 28, 1950.

In a strand twister comprising a spindle, means for mounting the spindle comprising a resiliently supported non-rotatable bearing-member for the spindle which converts gyratory movement of the spindle into oscillations of the member, electrical driving means for the spindle, and a circuit for supplying power thereto, the combination therewith of a control device comprising a movable element disposed adjacent to the bearing member to be engaged thereby during excessive oscillations thereof, and means responsive to engagement of the element by the member for interrupting the supply of power to the driving means to initiate stopping thereof.

Weighting mechanism for textile drafting. Virgil A. Burnham & Gordon C. Anderson (to Saco-

Lowell Shops) USP 2 525 647, Oct. 10, 1950.

In a drawing mechanism for spinning and roving frames, in combination with upper and lower drawing rolls, a weighting mechanism for the upper rolls comprising a lever, a frame supporting the lever for vertical swinging movement, the lever having a forwardly extending weighting arm overlying the rolls and having a power arm extending downwardly, and spring means pivotally urging the power arm to weight downwardly the movable upper arm and rolls.

Winding and spooling B 5

Bobbin box. William E. Turner (to O. B. Andrews Co.) USP 2 531 090, Nov. 21, 1950.

A bobbin box comprising four vertical walls and bottom closure means, one pair of opposite walls each having an extension from its upper edge comprising a portion extending toward the box bottom and an outer part joined to the portion and having a central circular opening adjacent its inner end and a central semicircular opening at its outer end in register with the circular opening in the juxtaposed other part for receiving the upper ends of bobbins.

Collection of artificial yarn on ring spindles. Sydney W. Barker (to Lustrafil Ltd.) USP 2 530 146, Nov. 14, 1950.

A method of commencing the winding of rapidly delivered thread on ring-spindle bobbins which comprises (a) reducing the drive of the ring-spindle to such a rate that the peripheral speed at the surface of the bobbin approaches but does not exceed the linear rate of delivery of the thread, (b) leading the on-coming thread to the empty bobbin on the ring spindle and giving it a turn thereon above the level of the ring so that the thread is wound on the bobbin revolving at the reduced speed, (c) passing the on-coming thread through the ring-traveller, and finally (d) restoring the ring-spindle drive to normal speed.

Electro-magnetic drive tugs at yarn tangles. Anon. *Textile World 100*, 159-60 (Dec. 1950).

A new drive for winders automatically nibbles at snarls and tangles in yarn, without exceeding predetermined tension. The use of this drive may help to reduce waste in winding from rayon cakes. It was adapted from Eatons' variable air-gap electro-magnetic clutch. Mfr: Eaton Mfg. Co., Cleveland, Ohio.

New skein winder gets 100% efficiency Anon.

Textile Mfr. 76, 540-1 (Nov. 1950).

A new skein winder shown at the Utrecht exhibition provides economy of operation as a result of an improved method of reeling. Two interchangeable reels are mounted on a pivot, so that the wound skeins may be doffed without interrupting the winding process. The efficiency of the machine is said to approach 100%. Supply bobbins are also creeled for continuous working. Moving parts of the well designed machine are largely made of light alloy. The reels are adjustable within wide limits for circumference, and variable speed drives can be provided if required. An electric stop motion is fitted and connected with a quick braking system, so that high winding speeds may be used without strain on the operative. Mfr: Croon and Lucke, of Mengen, Wurtemburg, Germany.

Spool moistening device for lap winders. Anon. *Saco-Lowell Bulletin 22*, 30-1 (Oct. 1950).

See front section.

Traverse mechanism for winding machines. William H. Kreamer (to American Viscose Corp.) USP 2 529 559, Nov. 14, 1950.

Traverse mechanism for winding machines comprising a carrier to be traversed, a variable-velocity motor for driving the carrier, a cam, means for driving the cam at constant speed, a device co-operating with the cam for developing an electrical signal the character of which is dependent on the change in contour of the cam, and means responsive to the electrical signal for controlling the velocity of the motor.

Yarn processing — B 6

Yarn conditioning device. Edwin G. Beier. USP 2 525 997, Oct. 17, 1950.

A yarn conditioner comprising a fluid container, a cover for the container, a plurality of hollow elongated wick housings generally rectangular in cross section and secured at their inner ends to the outer face of the cover and extending radially therefrom, the hollow housings being in communication with the interior of the container by means of openings in the housings in registry with corresponding openings in the cover, and elongated flat wicks extending from within the container through the openings into the housings and substantially enclosed by the latter, the wicks and the housings having transverse aligned thread apertures adjacent their outer ends to permit the passage of threads therethrough in a direction generally parallel to the axes of the apertures.

Yarn testing — B 10

Yarn testing device. Leland G. Smith (to Celanese Corp. of Am.) USP 2 524 936, Oct. 10, 1950.

A device for continuously testing or measuring the denier of a traveling yarn, comprising a U-tube terminating in funnels through which the yarn to be tested is adapted to be drawn, mercury in the U-tube and filling the funnels, contacts dipping into the mercury in the funnels, and a low resistance measuring bridge having the mercury as a resistance in one arm thereof and connected to the mercury through the contacts for measuring variations in the resistance of the mercury in the U-tube.

FABRIC PRODUCTION — C

Yarn preparation — C 1

Development possibilities in the manufacture of textile smallwares. *Textile Recorder 67*, 99-101 (Oct. 1950).

Technological improvements in the smallware industry of Britain (Narrow-fabric weaving and braiding) are outlined. Filling winding, narrow-fabric looms, selvedges, braiding, yarn tension, and bobbin capacity are some factors discussed.

Conference on yarn preparation. Anon. *Brit. Rayon & Silk J. 27*, 78-9 (Nov. 1950).

Brief reviews of papers read at Burnley meeting of Textile Institute conference include: (1) "What percentage size is required for cloth to weave well", by L. Armstrong, (2) "Systems of looming", by W. C. Hargreaves; (3) "The dyeing and preparation of yarn for color-woven goods", by S. Emmott; (4) "Problems of adapting American preparation techniques to British Mills", by F. Lee.

Georgia Mills discuss slashing techniques. Anon. *Textile Industries 114*, 101-106, (Dec. 1950).

See front section.

Permanent sizing. Polymer containing free aldehyde groups. Emmette F. Izard, E. I. duPont de Nemours & Co. *Ind. Eng. Chemistry 42*, 2103-10 (Oct. 1950).

Vinyl acetate and allylidene diacetate may be copolymerized and then subjected to alkaline alcoholysis to yield a water-soluble product containing free aldehyde and hydroxyl groups. Applied to fabrics or paper in water solution, this material can be rendered insoluble by heat or mild acid after treatment. The resulting finish is

water-sensitive enough to launder well, but water-resistant enough to serve as a permanent size or to anchor pigments or other substances to the surface for solid color or printed effects.

Radio-frequency drying of textile fabrics. P. Alexander & G. A. Meek. *J. Soc. of Dyers & Col. 66*, 530-37 (1950).

An apparatus for studying the drying of textile fabrics by high-frequency heating is described. Rate-of drying curves for thirteen different textile materials, together with measurements of temperature and power consumption, are shown. With every material examined the drying curve shows a discontinuity and the rate of drying decreases at a certain moisture content, which in most cases approximates closely to the reported figures for saturation regain of the respective fibers. The water held by fibers at this moisture content is not free and has anomalous electrical properties. The practical advantages of high-frequency drying are discussed.

You should now be able to warp rayon from cakes. John S. Chaya. *Textile World 100*, 113-15 (Dec. 1950).

Cotton-system mills should now consider the possibility of making section beams from rayon cakes. Cake warping is feasible because of special means worked out for mounting them on creels similar to cone creels. A creel spaced for cakes will retain about 80% of its cone capacity. Beaming speed is about 300 yards per minute. One operator handles three beamers, but more creeling help may be needed. Less handling and fewer knots are claimed for cake warping.

Weaving C 2

Application and interpretation of shrinkage diagrams in connection with the occurrence of shiners. A. de Jong. *Enka Breda Revue 4*, 103-7 (1950); *in Dutch.*

A survey is given of the circumstances under which shiners may occur in fabrics manufactured from rayon yarn. Moreover, a method is described in which a shrinkage diagram is used to find whether a rayon yarn will give rise to the occurrence of shining threads. After discussing a few irregularities in shrinkage diagrams, the desirability is expressed not to keep the tension of the yarn during processing higher than is strictly necessary.

Attachment for textile machines. Tilden M. Carmichael (to Carie B. Raper) USP 2 527 396, Oct. 24, 1950.

In a multi-shuttle automatic replenishing loom, the combination with a frame having fixed sides, a bar supported between the sides, a pair of sleeves rotatably mounted on the bar and having polygonal exteriors, a pair of finger trips mounted in the frame and having lock elements at their inner ends engageable with the polygonal exteriors of the respective sleeves to prevent rotation thereof.

Casting out for jacquard flexibility. Donald A. Barrett. *Textile Industries 114*, 98-100 (Dec. 1950).

A practical method of utilizing "cast-out" Jacquard harnesses to adapt looms quickly for production of particular designs. Such a method maintains for the Jacquard weave mill the original productive cost structure upon which the fabric price may have been based, and offers a more practicable method of filling a new order than offered by other means. Photographs tell story.

Device to facilitate mounting of rolls of cloth on cloth spreading machines. Herman W. Gilbert. USP 2 525 346, Oct. 10, 1950.

A cloth spreading machine comprising a carriage including a platform supported upon wheeled legs, a base stably supportable upon the platform, a plurality of upright brackets carried by the base, and having aligned notches formed therein, a shaft receivable in the notches for being supported upon the brackets, and a roller rotatably carried by the shaft, the base and plurality of positions below the supports for the cloth roll and rod from which cloth is unrolled onto a cloth laying-up table traversed by the spreading machine, whereby, during the operation of installing the cloth roll and rod in the machine, rolling support therefor is provided by the roller disposed below the normal position thereof.

Harness stop motion. Hormidas Laplante. USP 2 527 742, Oct. 31, 1950.

In a loom having a loom frame and a harness frame, normally taut suspension means for operating the harness frame and holding the same in a general level position, an electrical stop motion for the loom including a circuit, a pair of electric contacts in the circuit suspended from the loom frame in a position adjacent the upper side of the harness frame, one of the contacts being elongated and extending laterally across the top of the harness frame and engageable by a portion of the harness frame to close the electric circuit of the stop motion to stop the loom upon a tilting

of the harness frame from the level position when the suspension means become broken and means to adjust the position of the elongated contact with reference to the frame.

How to determine correct warp tension. H. Hollstein. *Melliand Textilber. 31*, 674, 675 (Oct. 1950).

As a result of research work extending over several years, the articles contains for the first time concrete data on the numerical determination of the correct warp tension during weaving, and examples are given to show how to calculate warp tension for different types of fabric.

Hydraulic picker stick check. George H. Hufferd (to Houdaille-Hershey Corp.) USP 2 529 696, Nov. 14, 1950.

In a linkage for controlling the movement of a picker stick of a fly shuttle loom having first and second linkage members pivotally connected and relatively angularly shiftable as a function of the movement of the picker stick, the improvements comprising a housing defining an hydraulic chamber secured to the first linkage member, a piston vane cooperating with the hydraulic chamber and angularly movable therein, and means connecting the piston vane to the second linkage member, whereby relative pivotal movement of the first and second linkage members produces an angular shifting of the piston in the hydraulic chamber, the hydraulic chamber being constructed and arranged to yieldingly oppose relative angular movement of the piston vane by fluid checking action, thereby checking the movements of the picker stick.

Inspection and cleaning table for textiles. D. Otis Wylie. USP 2 530 038, Nov. 14, 1950.

An inspection table for textile mills, the table having a top formed with an opening a framework having an opening and including a part supported by the top above the opening and a second part fitting into the opening and a screen mounted over the opening.

Loom lay and beam. Edward C. Nichols (to Draper Corp.) USP 2 529 456, Nov. 7, 1950.

For a loom of the type having oscillating lay swords and a reed, a unitary, light-metal lay beam adapted to be carried by the swords and to support the reed, comprising a plurality of upwardly directed channel sections and at least one downwardly directed channel section formed from a plurality of generally vertically disposed members interconnected by a common, generally horizontally disposed web.

Method and apparatus for perforating jacquard card sketch paper. Richard Ruddell. USP 2 526 280, Oct. 17, 1950.

An apparatus for perforating a paper sheet adapted to be used for controlling the punching of jacquard cards comprising a movable table adapted to support a screen having a series of rows of holes therein, a paper sheet overlying the screen, and a stencil overlying the paper sheet, a series of needles corresponding to and adapted to be aligned with at least one row of holes of the screen, means for indexing the table to successively align the rows of holes of the screen with the needles, means for recriprocating selected needles of the series after each indexing of the table constructed and arranged to cause the selected needles to perforate the paper sheets at the open portions of the stencil and to permit the selected needles to be stopped from perforating the sheet by the closed portions of the stencil, and a Jacquard mechanism for selecting the needles to be reciprocated in accordance with the holes in a series of Jacquard cards.

Modern Swiss woolen looms. John H. Crowther. *Can. Tex. J. 67*, 50-4 (Dec. 8, 1950).

Reduction of work loads in weaving has been the main concern of modern Swiss loom manufacturers. The present Saurer loom is an example. While the present discussion is of the woolen and worsted loom, Saurer also makes similar looms for cotton and rayon fabrics.

At the present time, there are two main types of looms available—the 100W loom suitable for fabrics up to about 15 ounces per square yard, and the 200W type for fabrics up to about 30 ounces per square yard. These two looms can be constructed to weave any and every type of textile fabric as non-automatic looms with up to seven shuttles, or automatic bobbin-changing looms with up to four shuttles, or automatic shuttle-changing looms with one or two shuttles. There is no crank shaft on the Saurer loom. At either end of the main shaft and inside the main housings, the reduction gearing is mounted to a double spur gear to which a short crankarm is anchored. This crank-arm is connected to the sley sword and imparts to it the movement of the going part. By changing the double spur gears the throw of the going part can be altered, and by adjusting the overlap between the sley sword castings and the short crankarm, the angle of the sley swords at the beat-up can be altered. Sley swords and race boards are conventional in design. Pitch bound or all-metal reeds can be accommodated.

The loom will take cam motion, dobby or Jacquard shedding. The cam motion will accommodate up to 14 harnesses and is mounted under the loom. The harnesses are held between spring-mounted supports in the loom sides. The harness motion is, therefore, quite positive and, once set, requires no further attention until the cloth is changed. The height of the shed as a whole may be easily adjusted, and the depth of the shed of each individual harness can be done from the side of the loom in a matter of seconds.

Another feature of the Saurer cam motion worthy of mention is that a second drive can be supplied which allows cloths to be woven with weaves of two different gearing ratios.

The picking motion has been entirely re-designed from the conventional shoe type. It consists of a double pivot at the foot of the stick which ensures a perfect straight line movement for the fixed picker at the top of the stick. On the multi-box side, the usual buffalo picker is mounted on a spindle.

The let-off motion is positive and fully automatic, and can be very accurately set to give a certain tension on the warp which remains constant throughout the whole beam without any adjustments being necessary.

New picker stick check strap. Anon. *Am. Wool Cotton Reptr. 64*, 45 (Nov. 16, 1950).

The inner ply of a newly-patented picker stick check strap is highly porous tanned grain leather while the outer ply is of firm dense calendered steer hide. These are bonded together with a non-drying lubricant which penetrates both inner and outer ply. Mfr: Dickey Belting Co.

Nose board for axminster looms. Wm. A. Blanchard (to Crompton & Knowles Loom Works) USP 2 527 054, Oct. 24, 1950.

In the nose board for an Axminster loom, a plurality of flat parallel nose plates each having a tuft yarn guiding nose at the rear end thereof, a plurality of flat parallel spacer plates, the plates arranged side by side and the nose plates alternating with the spacer plates, the rear ends of the spacer plates terminating forward of the noses of the nose plates, and means holding the plates in fixed position relatively to each other.

Pile loom. Woodward Grosvenor & Co. Ltd. and J. F. Lockley. Australian P. 138 578, Sept. 21, 1950.

A loom of the kind specified characterized in that the rear ends of the longitudinally extending pile wires are displaceable in a direction laterally of the loom, and means are provided for effecting lateral displacement of the pile wire ends in coordination with the means for raising and lowering the pile warp, so that the pile threads are raised on one side of their respective pile wires, and in their raised position the pile threads and their respective wire ends move relatively laterally of the loom whereby when the pile threads are again lowered they are on the opposite side of their respective wires, thereby effecting the requisite looping of the pile threads around their respective wires to form the pile loops.

Picker stick slide linkage. George H. Hufferd (to Houdaille-Hershey Corp.) USP 2 529 695, Nov. 14, 1950.

A linkage for controlling the movement of a picker stick of a loom comprising bracket means adapted for rigid securement to a picker stick, a support bracket adapted for fixed mounting on a loom rock shaft, the support bracket defining a pair of angularly disposed slide tracks, slide blocks respectively disposed in the slide tracks, and a link pivotally secured to both the slide blocks and to the bracket means.

Picker stick linkage. George H. Hufferd (to Houdaille-Hershey Corp.) USP 2 529 694, Nov. 14, 1950.

A linkage for controlling the movement of a picker stick of a loom comprising a primary bracket adapted for securement to the rock shaft of the loom, the primary bracket defining a pair of vertically spaced pivot bearings over-lying the end of the rock shaft, a secondary bracket of generally U-shaped configuration having its base portion adapted for securement to a picker stick and disposed with the arm portions thereof projecting toward the primary bracket, the arm portions of the secondary bracket being sufficiently laterally spaced to straddle the primary bracket, a first pair of aligned pivot bearings respectively formed in the lower part of the arm portion, a second pair of aligned pivot bearings respectively formed in the upper part of the arm portions, a pair of first links pivotally connected between the lower pivot bearing of the primary bracket and the lower pivot bearing of the secondary bracket, and a pair of second links pivotally connected between the upper pivot bearing of the primary bracket and the upper pivot bearings of the secondary bracket, the pairs of links being constructed and arranged to control the movements of the picker stick to shift the shuttle-engaging portion thereof along a substantially straight line path.

Portable loom creel and tensioning means therefor. Leslie E. Bryant (to Nye-Wait Co., Inc.) USP 2 527 700, Oct. 31, 1950.

In a portable loom creel, a wheeled frame having means for rotatably supporting a plurality of yarn packages, with the respective yarn packages free to rotate about a horizontal axis, and brake means for supplying a drag on the respective yarn packages to resist rotation of the latter as the yarn is drawn therefrom, the brake means each having the form of a gravity-actuated paddle weight pivotally supported on the frame at one side of and above the axis of the yarn package and disposed to rest upon the upper side of its associated yarn package when the yarn packages are loaded in the creel, in combination with gravity-actuated loop-forming and tension members pivotally mounted on the frame and movable independently of the paddle weights aforesaid for engagement with the upper surfaces of the respective yarns at the yarn delivering sides of the yarn packages so as to freely bear downwardly with a floating action on the respective yarns and form a loop therein which will be progressively foreshortened by the draw of the loom until the drag of the paddle weight is overcome to let off more yarn from the yarn package and lengthen the loop under the gravity action of the loop-forming member.

Practical experience in weaving rayon staple. E. O. Hesse. *Melliand Textilber. 31,* 681-2 (Oct. 1950).

Upon summing up the practical experience gained in the weaving of rayon staple, it is at once evident that work can be carried out according to the rules and principles applicable to cotton weaving. Any difficulties that may arise in the processing of rayon staple are connected exclusively with the physical properties of the material. Although it is frequently not a simple matter to cope properly with these difficulties, the reason for that may be said to reside chiefly in the fact that an operator who is familiar only with the practical aspect of the matter pays either no attention at all, or at any rate too little attention to the physical properties of the material with which he is working, but works according to the practical rules with which he is familiar, but these have mostly been worked out for satisfactory results when applied to rayon staple.

Ruti cross-border dobby. W. Middlebrook. *Textile Mfr. 76,* 537-39 (Nov. 1950).

Timing the paper pattern cylinders in relation to the dobby shedding motion demands more care than the timing of the lag cylinder.

Selvedge means in loom. P. W. Robinson. Australian P. 138 671, Sept. 28, 1950.

In the production of woven fabric a method of binding in succession at a selvedge edge double shots of weft inserted by a needle or its equivalent, which includes the steps of inserting a loop of selvedge thread from a bobbin or other bulk thread carrier through a weft loop made available by a gap or by means operating through a gap near the leading end of the needle or equivalent, holding the inserted selvedge thread loop in such position that it is looped around the line defining the path of its insertion, inserting the next succeeding selvedge thread loop through the next succeeding weft loop made available in a like manner to the first weft loop and through the selvedge loop last inserted, and releasing the latter. For or in a loom of the kind specified means for interlocking weft loops with thread at a selvedge edge comprising a weft inserting element adapted to cooperate with a weft hook whereby the latter engages and retains clear of the selvedge edge a loop of inserted thread from the weft inserting element, a selvedge thread inserting needle carrying a selvedge thread, means for guiding and moving the needle transversely to the weft whereby the needle inserts a loop of selvedge thread through a weft loop retained as aforesaid, a selvedge thread hook for engaging and retaining while the needle recedes the loop of selvedge thread inserted through the weft loop, the selvedge thread hook being adapted to position the loop of selvedge thread retained thereon so that it surrounds the line defining the path of movement of the selvedge thread needle, and means for moving the selvedge thread hook to release the selvedge thread loop retained thereon and engage and retain the next succeeding selvedge thread loop when this is inserted by the selvedge thread needle through the next succeeding weft loop and through the first retained selvedge thread loop.

Shuttleless loom features Utrecht Show. Anon. *Textile Mfr. 76,* 540-1 (Nov. 1950).

The 44-inch fancy Gabler loom operates at 180 ppm and is said to obtain loom and weaver efficiencies beyond anything possible from box looms. Shown at the Netherlands Industries Fair at Utrecht, the shuttleless loom uses filling supplies drawn from cones or bobbin holders. It is equipped for four fillings, with compact filling

selection and feed. Filling carriers are moved by steel bands working in annular races on ball bearings. A warp stop motion is provided, though tension and breaks are said to be negligible because of the small shed. Selvages are formed by braiding. Several picks may be picked at will by the loom. Mfr: Ing. J. Gabler, Ettlingen, Netherlands.

Spot effects in single fabric structures. D. C. Snowden. *Brit. Rayon & Silk J. 27*, 65-7 (Nov. 1950).

Three methods of producing spot effects in single fabric structures are described and illustrated. The methods are: 1) by using spot or knop yarn in warp or filling on a simple weave; 2) by arranging small repeat color patterns in warp or filling with various weaves to give color-and-weave spot effects; 3) by increasing at intervals the floats of warp and filling to give weave spots.

Studies in textile design. III. Novelty fabrics. "Norwood". *Textile Recorder 68*, 97-8 (Nov. 1950).

In boucle fabrics, spiral yarns are much better used in the filling direction than the warp, since the fabric may be developed better in the dyeing and finishing by filling shrinkage rather than by warp shrinkage. While there is ample scope for the designer in the field of boucle fabrics, he should not overlook the proper selection of weave formations. Examples of four types of boucle fabrics, with weaving designs are given.

Shuttle binder for looms. John T. Kennedy (to Crompton & Knowles Loom Works) USP 2 527 066, Oct. 24, 1950.

In a loom lay having a shuttle box thereon, a shuttle binder forming part of the shuttle box moved bodily transversely of the shuttle box by a shuttle entering the shuttle box, a mass of soft resilient material interposed between the lay and the outer end of the binder, resilient cushions extending along the binder on the side of the latter adjacent to the shuttle, and a facing secured to the cushions for direct engagement with the shuttle, a shuttle when entering the shuttle box compressing the cushions and thereafter transmitting a force through the compressed cushions against the mass of material to deform the latter, the mass of material due to deformation thereof resisting the transverse motion of the binder.

Shuttle check, picking mechanism, and parallel motion for looms. George Crompton, Jr. USP

2 525 776, Oct. 17, 1950.

Apparatus of the class described comprising a shoe-rocker for a picker stick which shoe rocker is made of magnetically permeable material, a plate to support the shoe-rocker, and magnetic means to hold the shoe-rocker upon the plate.

Take-up tension for shuttles. James E. Segee & Wilfrid J. Gosselin (to U. S. Bobbin & Shuttle Co.) USP 2 528 915, Nov. 7, 1950.

A self-threading shuttle having a body and a threading block with a longitudinal threading chamber open at the top and a lateral eye outlet passage extending at a substantially right angle therefrom to an outlet eye hole in the side of the block and an eye outlet in the body of the shuttle; a take up arm mounted to swing longitudinally of the shuttle on a pivot which is positioned near the top of the shuttle block at the junction of the longitudinal threading chamber and the lateral outlet eye passage, the take up arm being resiliently movable so that its free end can swing in an arc below the outlet eye hole against a stop in front of the eye hole, there being a trap including a long back leg at the back and a short front leg at the front of the outlet of the eye hole together with a cut away part in the body of the shuttle which extends up above the bottom end of the front leg, whereby the thread can move down around the bottom of the front leg and up into the eye hole in the metal which outlet eye hole is positioned above the bottom or free end of the take up arm.

The progress of automatic weaving in the British textile industry. H. deG. Gaudin. *Textile Recorder 67*, 96-8 (Oct. 1950).

During the last four years the output in automatic looms in Great Britain has increased to a figure which is now over three times that of the peak period prior to 1940. Of this output some 70 per cent, is being delivered to the home market. This means that the percentage of automatic looms, as compared with non-automatic looms, is increasing fairly rapidly.

Thread holder for weft replenishing looms. Richard G. Turner (to Crompton & Knowles Loom Works) USP 2 531 177, Nov. 21, 1950.

In a weft replenishing loom having a reserve bobbin magazine from which weft ends extend and having a backwardly and forwardly reciprocating lay provided with a center filling fork, a thread holder for the weft ends, means mounting the thread holder for movement backwardly and forwardly in the loom, and cooperating with the

mounting means effecting backward motion of the thread holder to a position to facilitate threading of a shuttle during the first pick thereof subsequent to replenishment thereof with a bobbin from the magazine and thereafter effecting forward motion of the thread holder to a position to facilitate movement of the thread of the shuttle under the filling fork.

Thread control for weft replenishing looms. Richard G. Turner (to Crompton & Knowles Loom Works) USP 2 531 176, Nov. 21, 1950.

In thread control means for a weft replenishing loom having a lay provided with a center filling stop fork and wherein a thread extends from a transferred bobbin in a shuttle on the lay to a thread holder, the shuttle being picked during backward motion of the lay and traveling along the lay as the latter moves to the back center position thereof, a thread moving member on the lay in front of the thread moving the latter rearwardly during part of the backward motion of the lay to facilitate threading of the shuttle, and a cast-off member effective as the lay approaches the back center position thereof to disengage the thread from the moving member, the shuttle due to motion thereof along the lay thereupon cooperating with the thread holder to draw the thread under the filling stop fork.

Warner & Swasey weaving machines tested at Cleveland Worsted. Wm. A. Newell *Textile World 100,* 110-111, 230, 232, 234, 236 (Dec. 1950).

See front section.

Knitting C 3

Circular-knit fashioned hose. Anon. *Brit. Rayon & Silk J. 27,* 62-4 (Nov. 1950).

The Reymes-Cole circular-knit fashioned machine starts a stocking at the toe with less than the full complement of needles, and then introduces the initially non-knitting needles during the making of the calf. The method provides a wale-fashioned circular knit hose comparable in shape with a modern full-fashioned hose.

The method was used twenty-six years ago. But it did not then produce a marketable stocking because means were not available for the elimination of needle and sinker lines at the back of the heel and along the toe. Present improvements are said to eliminate these defects. Uniform stitch construction is claimed except for small holes where needles are put into action, the appearance

of which is not unlike the conventional fashion marks made by tucking.

Fewer coarses per unit of length in foot and ankle are required by wale-fashioning, which therefore can produce a stocking more quickly than the standard seamless method.

Circular knitting machine. Albert R. Ellis. USP 2 527 534, Oct. 31, 1950.

In a circular knitting machine of the character described, a cam cylinder provided with an accurate levelling rib on which the needle butts ride when the needles are in their lowermost knitting position and with needle actuating cams including a throw-in cam, a throw-out cam, narrowing cams and widening cams, the rib including a vertically movable needle-raising section for repeatedly raising different groups of the needles out of action during knitting operations in which the throw-in and throw-out cams are not employed and means for returning to action each group of needles which is thrown out of action by the needle-raising rib section.

Cone holder. Robert B. Putnam (to Fenimore Fabrics, Inc.) USP 2 529 351, Nov. 7, 1950.

A cone holder for knitting or textile machines comprising a bolt adapted for mounting on a creel frame, an upper washer fixed on the bolt and formed with a plurality of radially disposed downwardly inclined cone gripping fingers having substantial width, the outer edges of the fingers being obliquely inclined with respect to the axis of the washer whereby to constitute fragmentary threads for biting threaded engagement with the inside of the cone at a point spaced from the small end of the latter, a second washer slidable on the bolt below the first washer, the rim of the second washer being round in transverse section, and a spring about the bolt constantly urging the second washer upwardly, the second washer being larger in diameter than the first washer and frictionally engageable with the inside of the cone at a point spaced downwardly from the first washer.

Electric stop motion for double feed mechanism on knitting machines. Roscoe Hill (to Scott & Williams) USP 2 531 681, Nov. 28, 1950.

In a knitting machine equipped for double feed, the combination with the main control drum, the double feed mechanism including racking wheel and cam operating vertical shaft operated thereby, and mechanism for effecting the racking of the double feed mechanism into and out of feeding relation upon actuation of the control drum, of

a notched disc mounted on the cam operating shaft, a stop motion electrical control circuit, a switch included in the control circuit and arranged adjacent the notched disc to be operated thereby upon completion of normal racking of the double feed mechanism, a cam located on the main drum and a second switch included in the stop motion electrical control circuit and arranged adjacent the cam to be actuated thereby coincident with the completion of the normal racking of the double feed mechanism, the switches being connected in series to maintain the stop motion electrical control circuit de-energized while the racking mechanism and control drum remain in synchronism and to energize the electrical control circuit upon the racking mechanism and control drum moving out of synchronism during racking to stop the machine.

Knit Products Corp. installs air-conditioning system. R. S. Fullerton, *Textile World 100*, 120-1 (Dec. 1950).

Air conditioning for Knit Products Corp., Belmont, N. C., came initially because the mill had conducted a test comparing costs, quality, quantity, and efficiency of employees in the looping, seaming, and inspecting departments with similar departments of another mill that had air conditioning. The latter showed higher performances.

Knitting machine. George H. Woolley. USP 2 529 207, Nov. 7, 1950.

In a straight bar knitting machine arranged for the production of intarsia fabric and having a line of needles and a plurality of thread carrier rods, the combination of a plurality of thread carriers mounted on each rod and having threads thereon adapted to be supplied to the needles at the front side thereof, means for positioning the threads associated with any two of the rods at locations suitable for supplying the threads to the needles at the rear thereof when the rods are next moved in a direction of the line of needles, means for shogging one of the two rods, while the threads are positioned as stated, in one direction of the line of needles to the extent of the distance between adjacent needles, and for shogging the other rod in the opposite direction to the extent of twice the distance, and means for repositioning the threads after the rods have been shogged, at suitable locations to be again supplied to the needles at the front thereof.

Knitting machine. Samuel Saftlas. USP 2 531 649, Nov. 28, 1950.

In a circular knitting machine having wind up means to draw the tube of fabric under tension from the knitting instrumentalities, a pair of spaced spreading rings positioned within the tube of fabric between the knitting instrumentalities and the wind up and over which the fabric travels in tensioned cylindrical form, a rotary printing member mounted in printing engagement with the surface of the fabric between the rings, means to supply printing material to the printing member, a disc, a shaft common to the printing member and disc, and teeth formed on the periphery of the disc and engageable in a linear series of stitches of the fabric to rotate the printing member and maintain the application of printing material to the fabric by the printing member in a predetermned relation to the linear series of stitches engaged by the teeth.

Knitting machine. Arthur Shortland. (to Mellor Bromley & Co. Ltd.) USP 2 530 790, Nov. 21, 1950.

In a knitting machine, apparatus for driving a driven member to and fro between limit stops, comprising a driver movable to and fro, releasable coupling mechanism for establishing a positive driving connection between the driver and the driven member, and coupling release means approach to either limit stop to render the coupling mechanism temporarily ineffective to transmit the drive in the approach direction but capable of re-engagement upon reversal of travel of direction until again operated by approach to the other limit stop.

Knitted pile fabric. Walter A. Rice (to Mohawk Carpet Mills, Inc.) USP 2 531 718, Nov. 28, 1950.

A knitted pile fabric which comprises a plurality of spaced parallel warp chains, each made up of a series of chain stitches with the stitches of the several chains lying transversely aligned in courses, a plurality of weft threads, each thread being of regular sinuous form with successive stretches thereof passing in successive courses through chain stitches of a plurality of adjacent warp chains, each thread tightly engaging a chain stitch at each point of reversal of the thread and each warp chain being connected to chains on either side thereof by a plurality of weft threads in each course, and a plurality of heavy pile yarns, each yarn being of regular sinuous form with successive stretches thereof passing in successive courses through chain stitches of at least three adjacent warp chains and tightly engaging a stitch at each point of reversal of the yarn, each

warp chain being connected to chains on either side thereof by at least two pile yarns in each course and each yarn having a single portion in each stretch thereof raised out of the fabric between a pair of adjacent warp chains to form a pile element, the remainder of each yarn in each stretch being embedded in the body of the fabric, the pile elements lying in longitudinal rows with successive elements in each row formed of different yarns.

Knitted structure and method of producing the structure. William P. Crawley. (to American Viscose Corp.) USP 2 529 541, Nov. 14, 1950.

Method which comprises producing a continuous structure composed of a plurality of knitted articles the adjacent edges of which are joined by a single course of a yarn formed from fibers of a copolymer of vinyl chloride and vinyl acetate which have been stretched by about 800%, the joining yarns having a yarn count and denier the same as the yarn count and denier of the yarns forming the joined articles, but having a lower fusing temperature than that of any thermoplastic yarns present in the knitted articles, and thereafter simultaneously subjecting the joining yarns to heat and applying tension to the structure to convert the highly stretched copolymer fibers to a softened condition in which they tend to contract strongly in opposition to the restraining force of the stitches of the joined articles and to effect disintegration of the joining yarns to discrete particle form thereby disconnecting the articles.

More and faster hosiery identification at Bryan Full Fashion Mills. Anon. *Textile Industries 114*, 90-1 (Dec. 1950).

Using a Welt Perma-Printer, the Bryan Full Fashion Mills, Inc., Chattanooga, Tenn., reduced handling of goods and speeded the hosiery identification process. Welt-identification data may be set up easily on printer. Changes may be made in 15 seconds, by removal of linotype-like slug. Inexperienced operators turned out 562 dozen in 8 hours on the printer, while another mill labelled 1500 dozen per day with one operator and a conveyor to feed the stockings to here. Mfr: Perma-Print Co., Chattanooga, Tenn.

Pattern mechanism of knitting machines. Fritz Lambach (to Robert Reiner, Inc.) USP 2 528 524, Nov. 7, 1950.

In a pattern mechanism of a knitting machine a cam comprising: a disc-like main body, a series of abutting elements arranged along a circle at

a side surface of the disc-like main body, and a series of cam bits, each of the cam bits having an abutting surface in engagement with such an abutting element, and each of the cam bits being detachably secured to the disc-like main body.

Portable vacuum, blower units for cleaning. Anon. *Textile Industries. 114*, 97 (Dec. 1950).

The modern use of portable vacuum and blower cleaning of sewing rooms is illustrated by description of methods at Summit Mills, Philmont, N. Y. Small 110-volt portable hand vacuum clean delicate equipment; while a larger 1100-watt unit, with 1 h.p. motor, compressor and tank, is mounted on casters and used to blow down ribbers and interlocks.

Principles of weft knitting. Part III—Looping elements. S. B. Bradley. *Brit. Rayon & Silk J. 27*, 69-72 (Nov. 1950).

The production of weft-knitted fabrics on machines using "sinkers" is described. The function of the sinker, and a description of its principal parts are given in detail. In explaining the principles of latch-needle loop formation, the author illustrates with a detailed description of the simple type of machine—the circular latch needle plain web machine.

Runproof stocking. Donald H. Powers & Wm. J. Harrison (to Monsanto Chemical Co.) USP 2 526 684, Oct. 24, 1950.

A substantially run-proof stocking comprising fine or sheer knit fabric which has deposited thereon from 0.1 to 5% of silica based on the weight of the fabric.

Sinker cam mechanism for circular knitting machines and method of operating a circular knitting machine. Frank R. Page (to Scott & Williams Inc.) USP 2 529 181, Nov. 7, 1950.

In a circular knitting machine having independent latch needles and sinkers, control means for the sinkers comprising a cam at the cast-off point to press the sinkers in and an adjustable cam opposite it boxing the sinkers in at that point to prevent overthrow, in combination with a movable secondary cast-off cam following and spaced from the cast-off point to push all the sinkers in an extra depth, and resilient means adapted to press the secondary cam inwardly, for the purpose described.

Sinker control mechanism for circular knitting machines. Eugene F. Miller (to Hanes Hosiery Mills Co.) USP 2 531 073, Nov. 21, 1950.

In a circular knitting machine a rotary cylinder

with needles and cooperative sinkers; a main knitting station with a feed for feeding a main yarn and with a stitch cam for actuating the needles to knit the main yarn; a plurality of auxiliary knitting stations circumferentially spaced from each other and from the main station around the cylinder, each such auxiliary knitting station having a retractable feed for an auxiliary yarn and an auxiliary stitch cam for actuating the needles to knit the auxiliary yarn; an auxiliary sinker actuating cam at each auxiliary station normally occupying a definite position relative to the corresponding stitch cam during normal knitting; and means instrumental, upon insertion of the auxiliary yarn feeds, in causing the auxiliary sinker actuating cams to be rotatively shifted slightly temporarily relative to the stitch cams in the direction of cylinder rotation and so preclude pinching of the newly-introduced auxiliary yarns by the sinkers.

Two-color, fancy jerseys. Anon. *Am. Wool Cotton Reptr. 64*, 11-12, 52-5 (Nov. 16, 1950).

In this third and final article digested from the book, "Pattern Wheel Designing for Circular Jersey Knitting Machines" by Abraham Abrams and Lester Mischon, the wide variety of designs and novelty weaves possible on supreme circular jersey machines is described. The two most customary arrangements of feeds for two-color knit and tuck, knit and welt, and "three-position" pattern wheel work are also described; and the method for knitting patterns, overcoating, novelty weaves, and lace cloth is discussed.

Warp knitting technology. Part IX. D. F. Paling. *Brit. Rayon & Silk J. 27*, 72-3 (Nov. 1950).

Partially threaded guide bars may be employed on the warp-knitting machine to produce a range of fabrics containing card effects or semi-open de s igns and raised effects. The patterning effects for warp-knitted piques and other semi-open fabrics are described.

Warp knitting machine. Rudolph Bassist (to Futura Fabrics Corp.) USP 2 529 241, Nov. 7, 1950.

In a warp knitting machine a cam shaft, a warp beam, adjustable mechanism operated in timed relation to the cam shaft for continuously rotating the warp beam in yarn-feeding direction, the mechanism comprising a variable-output fluid motor, means for varying the output of the motor, and regulatory means operatively connected to the output-varying means and responsive to the diminishing quantity of yarn on

the warp beam for automatically effecting compensatory variations in the warp beam movements.

Yarn carrier for knitting machines. Winborne W. Saunders. USP 2 528 389, Oct. 31, 1950.

In a full fashioned knitting machine having needles, sinkers, and dividers, and having a carrier bar equipped with a yarn carrier whose lower end is adapted to feed a yarn in close proximity to the needles, the yarn carrier being mounted on the carrier bar for vertical sliding movement, tension means normally holding the yarn carrier in raised position, adjustable means disposed at each end of travel of the yarn carrier and adapted to engage the upper end of the yarn carrier when it has reached the limit of its travel to depress the yarn carrier to cause its lower end to deposit its yarn at a level lower than the top of the sinkers, whereby upon movement of the yarn carrier across the tops of the sinkers, the lower ends of the yarn carrier will be disposed at a higher level than that occupied by the tops of the sinkers, other slidable bars disposed in alternate relation, an additional carrier bar having a yarn carrier thereon and being disposed between the alternate bars and each of the alternate bars having adjustable means mounted thereon adapted to engage a yarn carrier mounted on the additional carrier bar disposed between the alternate bars at each end of the travel of the carrier bar, the alternate bars having the means thereon for engaging the upper end of the yarn carrier on the additional carrier bar disposed between the alternate bars, being movable to cause their depressing means to be moved towards and away from each other in response to narrowing or widening operations to thereby occupy the right position to depress the yarn carriers at each end of travel of the yarn carrier on the additional bar.

Yarn trapping mechanism for circular knitting machines. George Palmer (to G. Stibbe & Co. Ltd.) USP 2 527 069, Oct. 24, 1950.

For use in conjunction with two feeders of a circular knitting machine, a yarn trapping unit comprising, in combination, a fixed horizontal plate having thereon a lug, a horizontally disposed jaw pivoted between its ends on the lug, the jaw having a portion depending from its lower edge, and a second jaw which is disposed beneath the first jaw and is pivotally connected between its ends to the depending portion of the first jaw, the two jaws constituting a trapper for reception

of at least one yarn from one feeder and being capable of movement relatively to each other for opening and closing this trapper, and the lower of the two jaws being adapted, upon conjoint movement of the jaws, to function in conjunction with the fixed plate to provide a second trapper to receive yarn from the other feeder.

Special fabrics C 4

Belting fabric and procehs. John B. Sidebotham. USP 2 531 082, Nov. 21, 1950.

A belting fabric woven to the width of the finish belting, having a plurality of plies each provided with face warp ends and filling interwoven in each ply, binder warp ends binding the plies through to the body of the belting portion, the belting fabric having, at the ends of the body of each belting portion, end portions including lap end sections woven with less than all of the face warp ends woven into the fabric and having stuffer warp ends carried straight lengthwise between the plies of the fabric throughout the major portion of the body of each belting portion and only interwoven with the fabric in the end portions.

Construction and manufacture of uncut moquette fabrics. J. Cowburn. *Textile Mfr. 76*, 545-48 (Nov. 1950).

Uncut moquettes for upholstery and furnishings resemble Brussels Carpets. Sometimes called "wire loom repps," they have parallel lines of widthwise loops that give the cloth the appearance of a "repp" structure. Britain has mass-producted the fabrics since the 1930's, the finer fabrics going into dress goods.

Most uncut moquettes have a worsted pile face. The pile yarns are two-ply and flyer spun from prepared tops of 48's to 50's wool, usually English, though crossbred blends suffice. Well-covered yarns, free from surface fibers, assure good weaving. Counts commonly used are 2/16s, 2/18s, 2/20s, and 2/24s, usually purchased in skein.

Slubs and thick places spoil yarns for moquette fabrics. Black-board appearance, elongation, counts, and twist are test factors closely controlled. A good 2/18s grey yarn in oil should test (taking 24 inches, single end) about 23-24 oz., with elongation of 2 to 3 inches, 7 to 7¼ tpi. in the two plies of "S" twist, and 10 tpi. of "Z" twist in the singles. Tests are made again after setting and dyeing. Strength should be about 21 oz., elongation at least 1½ inches. Good pile yarns lose less than 10% strength after dyeing.

Pile yarns may also be made from mohair, cotton, or rayon staple.

Two warps and one filling form the structure of the fabric. One warp, tensioned tightly and called the tight warp, should be strong. Usually from double-carded cotton, the counts are 3/12s, 3/14s, 4/24s, or 4/20s. The slack warp from carded cotton yarns may be 3/18s, 3/20s or in some case 2/16s. At 25 tpi., the slack warp will require 70 yards to produce a 60 yd. piece; but 62 yards of tight warp may suffice. Section beams are dyed, then beamed or dressed for weaving.

Cotton filling counts may be 1/8s, 2/16s, 3/24s, or 3/36s, depending upon quality. The filling is purchased on warp beams, then dyed, sized, and wound.

Diaper. James H. Crossingham. (to Mount Airy Knitting Co.) USP 2 530 046, Nov. 14, 1950.

Diaper comprising an elongated substantially rectangular widthwise stretchable sheet having back and front portions adapted to be upturned to bring the portions in embracing relation respectively to the back and front of the body, a rubber band extending across the end of each portion secured at its ends to the sheet adjacent the lateral edges thereof, a pair of fastening devices adjacent each end of the back band, the devices of a pair being transversely spaced and secured solely to the sheet so as to be relatively movable in a transverse direction when the sheet is stretched, complementary fastening devices adjacent the ends of the front band selectively engageable with the outer or inner fastening devices of the pairs, so as to include the full length of the back band in the elastic circumferential girth line formed by the bands, or to exclude the end portions of the back band therefrom, without altering the full length of the front band which is included in the girth line, and a pad congruent with the intermediate portion of the sheet, stitched thereto at one side only.

Method for the repair and conditioning of nylon fabric. Harry McAdams. USP 2 530 259, Nov. 14, 1950.

In a process for repair of articles manufactured of nylon yarn the steps which consist in stretching the yarn at the zone of repair and while in such condition rearranging the yarn into proper position, and while so stretched subjecting the article at the zone of repair to a saturated live steam treatment for setting the yarn.

STANDARD FINISHING D

Analysis of detergents. Anon. *Soap and Sanitary Chemicals 26,* 69, 71 (Dec. 1950).

Surface active agents may be identified as to the type of detergents and the fine structure of the active principle by means of scheme of analysis applying modified familiar methods. Pre-analytical steps are stressed. Physical appearance, partical size, uniformity, and other phvsical and chemical properties are determined. Linsenmeyer test methods are recommended for identification of the type of active principle only; the Lassaigne sodium fusion test for identity of structure as well as type.

Device for producing warning prior to exhaustion of bobbin thread. Leo Roseman. USP 2 526 279, Oct. 17, 1950.

The combination of a sewing machine having a wound bobbin thread which is unwound during operation of the machine, a bobbin case for the bobbin, a mechanism to be actuated at a predetermined time during operation of the machine, and a device on the bobbin case for controlling actuation of the mechanism, the bobbin thread having means to cooperate with the device for initiating actuation of the mechanism.

Fatty acid-aliphatic amine polyglycol combinations useful as textile assistants and process of producing the same. Alton A. Cook & Irving Wolf (to Arkansas Co., Inc.) USP 2 525 771, Oct. 17, 1950.

A process of making a textile softener which comprises combining a high molecular weight fatty acid having 12 to 24 carbon atoms with a water soluble saturated aliphatic amine at about 165°C. to 205°C. for about 1 to 2 hours and then with a polyethylene glycol having an average molecular weight ranging from 200 to 1500 at about 150°C. to 175°C. for about one hour.

Hinnekens boil-off machine. Anon. *Am. Wool Cotton Reptr. 64,* 37 (Nov. 16, 1950).

Features of a new boil-off machine are noted. Mfr: Hinnekens Machine Co.

Literature survey of textile bleaching. John F. Hagen. *Am. Dyestuff Reptr. 39,* P739-50 (Oct. 30, 1950); P703-14 (Oct. 16, 1950).

Continuous and semicontinuous bleaching—hypochlorite versus peroxide.

J-box steaming of cottons held not equal to kier boil. Anon. *Daily News Record 237,* 17 (Dec. 6, 1950).

According to the first Canadian-American joint meeting of textile chemists and colorists in Montreal, on cotton goods a J-box alkaline steaming is not as good as an equivalent kier boil; there is no need to keep air out of a J-box to prevent formation of oxycellulose; and peroxide bleaching is less like to damage the goods than hypochlorite.

Questions and answers. Can as satisfactory a kier boil be given by one hour in a J-box as in the old type kier boil? No. A J-box alkaline steaming is not as good as the equivalent kier boil, from a technical standpoint. The proof of this is as follows: (1) For equal brightness, a kier boiled cloth can be J-box bleached with less peroxide and alkalies than the same cloth given a J-box alkaline steaming; (2) For equal brightness a J-box alkaline steamed cloth requires more peroxide and alkalies in a kier bleach, than the same cloth given an equivalent kier boil.

However, a J-box alkaline steaming followed by a J-box steam bleach with peroxide, requires less chemicals and very much less time than an equivalent kier boil followed by a kier bleach. The first process produces a better and more uniform result.

Which type of bleaching, peroxide or hypochlorite, has least damaging effect on cotton? There are available numerous records of large scale peroxide bleaching operations over long periods of time on cotton fabrics of all types from voiles to ducks and wide sheeting, showing fluidities under 5.0 (many under 4.0) at brightnesses over 90 per cent. The initial changing from chlorine to peroxide bleaching in many bleacheries was due mainly to the lesser likelihood of damage to the fabrics handled.

To what extent is oxycellulose encountered when processing cotton continuously on the J-box method of kier boiling? There is no need of keeping air out of a J-box in order to prevent oxycellulose. In fact, sometimes a mixture of air and steam for heating is desirable. The amount of oxycellulose encountered in continuous peroxide bleaching is much less than it has even been in large scale systems of bleaching.

Problem in finishing of new fibers approaches solution. Anon. *Chemical & Engineering News 28,* 4268 (Dec. 4, 1950).

See front section.

Relationship between detergency and absorption by the fiber. K. McLaren. *J. Soc. of Dyers & Col. 66,* 521-29 (Oct. 1950).

The effect of four variable factors—tempera-

ture and detergent, acid, and salt concentration—on the wool-detergent properties of a specific non-ionic surface-active compound has been studied in detail; the effect of each on the absorption of detergent by the fiber has also been determined. It has been shown that — (1) Increasing the temperature from the normal wool detergency temperature of 50°C. to 80-90°C, causes an increase in detergent efficiency. (2) The effect of adding acid to the detergent solution is to cause an increase in detergency. (3) Adding sodium chloride to the detergent solution causes an improvement in detergent efficiency up to the concentration where precipitation occurs.

Sewing machines for making fabric tubes. Rudolph J. Saller (to The Singer Mfg. Co.) USP 2 529 575, Nov. 14, 1950.

In combination with a sewing machine having a frame including a cylindrical bed, stitch-forming mechanism, and a work-feeding mechanism for feeding work across the bed; an arbor supported on a free end of the bed and extending outwardly there form at an angle thereto, and means to direct a strip of material to the stitch-forming and work-feeding mechanisms and helically about the arbor, with the opposite marginal portions of the strip in overlapping relationship to cause the machine to sew together the overlapped marginal portions of the strip is fed helically along the arbor.

Stretch meter records speed-ratio changes. Anon. *Textile World 100,* 160 (Dec. 1950).

Percentage stretch or shrinkage of materials being processed through pairs of rolls turning at different speeds is indicated and automatically controlled by the new Tay-Weston speeds ratio tachometer. Mfr: Weston Electrical Instrument Corp., Newark, N. J.

Survey of recent literature on soaps vs synthetic detergents. James Kanegis. PB 101800. *Bibl. of Technical Reports 14,* 219 (Nov. 17, 1950).

Survey of the detergent industry for the years 1949-50 inclusive based solely upon examination and comparison of the relative merits of both soaps and synthetic detergents. The purpose of this study is to indicate wherein and to what extent each class is superior to the other. Many different fields of application are covered. Only available U. S. detergents are considered.

Synthetic detergent literature. Anon. *Soap & Sanitary Chemicals 26,* 51, 169 (Dec. 1950).

A 58-page booklet, "A Survey of Recent Literature on Soap versus Synthetic Detergents", is announced. By James Kanegis, the booklet was published by U. S. Dept. of Commerce. Price 75¢. Bibliography of 105 sources is reprinted by the article.

Vat dye pigmentation methods in textile dyeing. T. Richardson. *Textile Recorder 68,* 106-8 (Nov. 1950).

Interest in vat-dye pigments for cotton fabric has grown the past decade. There were no faults to find in the conventional methods of vat dyeing cotton, insofar as fastness to light and wash were concerned. Treatments of cotton in solutions of alkaline leuco compounds of the vat dyes produced good fastness. What was needed was a method of avoiding application difficulties so that consistently good fabric appearance could be obtained.

Two characteristics of leuco compounds are responsible for these difficulties. The initial rate of dyeing was so high that good penetration was hard to get, especially in view of the second characteristic, which is the extreme reluctance of the dye to re-distribute itself or to migrate subsequent to the initial strike of the dye.

To bring the vat dye and the cotton fiber together was the problem that promoted the use of pigments. Vat-dyed pigments are now available as paste and powder brands which have been prepared in fine enough particle size for practical use.

The pigment-padding method of applying vat dyes is now well established in piece goods trade and appears to offer a complete solution to the application difficulties mentioned. It is inconvenient, however, because the development of the dye is carried out on the jig by individual batches, while the padding process is continuous. In addition, heavy fabrics like cotton duck do not pick up good penetration of dye because of the leaching out of the pigment during jig development.

For long runs of piece goods, the DuPont pad steam process and the use of the Williams booster units have given excellent results. But the pigment-pad jig-development method is still being used in Britain where the production of a large number of shades on a wide variety of cloths is required.

Vat dyeing of polyamide and polyurethan filament and staple fibers. .J Muller. *Melliand Textilber. 31,* 564-9 (Aug. 1950); *in German.*

Muller reports on experiments with the caprolactam type Perlon L and the polyurethan type Perlon U. The staple fibers dyed much more readily than the filament fibers which was ascribed to swelling caused by the acid-crimping process. A presteaming at 1-1.5 atm. pressure improved the dyeing properties with respect to rate, final depth, and levelness. Best results were obtained when the temperature of the dye bath was raised stepwise. The light fastness was improved by thorough oxidation (strong $NaBO_3$ solutions giving the best results) by severe soaping, and by the presteaming treatment.

Wet finishing of woolens and worsteds. H. L. Hallas. *Textile Recorder 68,* 95-6 (Nov. 1950).

See front section.

DYEING AND PRINTING E

Baths for stripping vat-dyed textile materials and agents useful therein. Alton A. Cook & Ira Sapers (to Arkansas Co., Inc.) USP 2 525 770, Oct. 17, 1950.

A stripping path for stripping vat dyestuffs from vat-dyed fabrics having sodium hydrosulfite and caustic soda in aqueous solution and also having a condensation product of a polyalkylene polyamine and a high molecular weight fatty acid, the assistant having the formula

$$H_2N(CH_2.CH\ NH)mCH\ CH\ NHCOR$$
$$H\ N(CH\ CH_2.NH)mCH_2.CH\ NHCOR$$
$$CH_2.NHCOR$$

where m is a numeral from 1 to 8 inclusive and where COR represents a high molecular weight fatty acid having from 12 to 32 carbon atoms.

Doctor mechanism for rotary intaglio printing presses. Joseph E. Meyer (to C. B. Cottrell & Sons Co.) USP 2 528 965, Nov. 7, 1950.

In an enclosed ink fountain, a base, a fixed back frame, a printing cylinder and a wiping mechanism therefor comprising a reciprocating carriage, a doctor frame including brackets pivoted to swing on the carriage, a platform slidable on the brackets, a doctor blade mounted on the platform, and coacting means for adjusting the ends of the doctor blade individually or simultaneously toward and away from the printing cylinder comprising swiveled nuts on the platform and manually operated adjusting screws mounted on the brackets and threaded into the nuts.

In an enclosed ink fountain, a base, a fixed back frame, a printing cylinder of a predetermined size and a wiping mechanism therefor adjustable for cylinders of different sizes comprising a carriage reciprocable on the back frame, a shaft mounted to rock on the carriage and to reciprocate therewith, a doctor frame including brackets fixed to rock and reciprocate with the shaft, lock levers reciprocating with and loosely mounted on the shaft, removable means for securing the lock levers to the doctor frame in different angular positions with respect thereto, and manually operated lock pins pivoted in the lock levers and arranged to be locked to and released from the carriage.

Dyeing fiber mixtures. Walter Hees. *Melliand Textilber. 31,* 496-500 (July 1950); *in German.*

The author describes the chemical and coloristic behavior of the polyamide fibers Nylon and Perlon on the basis of the present status of international research, and determines the most suitable processes for dyeing mixture goods composed of wool and polyamide fibers as the result of his own study of dyeing conditions and the affinity relations. Constitutional considerations of acid dyestuff types of various classes revealed laws governing the chemical structure of those dyes that dye the intimate mixture of wool and polyamide fibers in level shades.

Dyeing of wool/nylon unions. E. V. Burnthall. *Canadian Tex. J. 67,* 49-52 (Nov. 24, 1950).

The whole picture of wool/nylon dyeing is still not clear and must be considered still in a very early stage of development. It presents a real challenge to dyestuff supplier and consumer alike to develop a better understanding of the dyeing methods and increase our knowledge about the dyes suitable for this type of work. We are not far enough along in our understanding of the actual dyeing phenomena on nylon itself to be able to set out a simple picture which can be used as a guide to the dyer without cause or fear of misunderstanding.

Dyestuff suppliers should be able to furnish the combinations of dyes for specific shades and suggest the correct dyeing method. You should consider the possible use of pH control very seriously; buffered dyebaths are easy to establish and can do much to guarantee concurrent results. There are limitations as to the shades which can be produced on this mixture, and designers and sales departments alike would do well to discuss their proposed shade ranges with the dyer before production gets underway so that needless delay can be avoided.

Printing blankets. Anon. *Textile Recorder* 68, 103-4 (Nov. 1950).

In printing by engraved copper rollers, the functions of the backgrey are to protect the printing blanket, to absorb excess print paste, and to provide resilience by an addition of an extra layer to the printing foundation. Practical suggestions are methods of using backgreys are outlined; various types of printing blankets, including seamed, seamless, and grooved-rubber blankets, are compared.

Recent rayon patents and related inventions. Anon. *Brit. Rayon & Silk J. 27,* 80-1 (Nov. 1950).

A simple method of applying vats in printing nylon is described by B. P. 642,837, assigned to Ciba Ltd. The dyestuff preferred is a form of an ester salt of the leuco compound. An oxidizing agent, nitro arylsulphonic acid, and an agent to liberate the acid, usually an ammonium salt, are added to the paste. Printing, drying, steaming, rinsing, and soaping are the usual processes. Other British patents discussed by article: nylon sewing thread, a rotating cap for rayons, a plastic loom picker, crepe finish on nylon mixture fabrics, permanent water-repellent finishes, fume-fading inhibitors, flourescent dyeing of acetate rayon, and production of pile fabrics with flock.

Solubilized azo dye. Marvin H. Gold & Harold H. Levine (to The Visking Corp.) USP 2 526 218, Oct. 17, 1950.

A solubilized azo dye wherein the azo group is directly bonded to the group in the chain of a beta-nitro alkane sulfonate to which the nitro group is also directly bonded.

Some problems of rayon dyeing. Part X—Synthetic fibers. A. G. Tyler. *Brit. Rayon & Silk J. 27,* 68-9 (Nov. 1950).

Synthetic fibers generally produce dyeing problems similar to those of cellulose acetate. The most readily dyed of the synthetic fibers is nylon, since some members of practically all classes of dyestuffs have affinity for nylon. Some of these members and their methods of application to nylon are outlined.

Vat dyeing process for cellulose acetate textile material. George W. Seymour, George C. Ward & Robt. L. Hunter (to Celanese Corp. of Am.) USP 2 528 614, Nov. 7, 1950.

Process for the coloration of cellulose acetate textile materials, which comprises mechanically impregnating a cellulose acetate textile material with an aqueous suspension of an indigoid vat dyestuff, drying the dyestuff impregnated textile material, impregnating the latter with an aqueous solution containing 2 to 15% by weight of sodium sulfoxylate formaldehyde and 5 to 10% by weight of di-ethanolamine, steaming the wet textile material until the indigoid vat dyestuff is reduced to the leuco form, and then oxidizing the leuco indigoid vat dyestuff to the final colored form in an aqueous solution of sodium dichromate acidified with acetic acid.

SPECIAL FINISHING F

Fireproofing and creaseproofing of cellulose and protein textiles. Thomas H. Morton & Frank Ward (to Courtaulds Ltd.) USP 2 530 261, Nov. 14, 1950.

Cellulose and protein textile materials having within the individual fibers at least 3 per cent by weight of chemically combined non-volatile strong mineral acid and cyanamide produced by impregnating the materials with an aqueous solution consisting of 5 to 40 per cent of a non-volatile strong mineral acid and 8 to 25 per cent of cyanamide, drying at a temperature of below 80° centigrade and baking at a temperature of from 80° to 160° centigrade.

Method for producing slip-resistant textile materials. Donald H. Powers & Wm. J. Harrison (to Monsanto Chemical Co.) USP 2 527 329, Oct. 24, 1950.

The method of treating textile fabrics to provide them with a slip-resistant finish which comprises applying to the outer surfaces of the fabric an aqueous colloidal solution of silica consisting of a stable silica sol in an amount sufficient to supply from 0.1 to 5% of silica based on the weight of the fabric and sufficient to form a film of silica on the surface of the fabric upon drying, and then drying the treated fabric by exposure to temperatures of at least 200° F. without allowing the solution to convert to a gel, whereby an inorganic resinous film composed of particles of silica is formed thereon.

New fire-resistant finish. Anon. *Rayon & Syn. Tex. 31,* 53 (Dec. 1950).

Samples of napped rayon fabrics were treated with the new Pyroset resin finish and then subjected to flame tests with excellent results. The new fire-resistant treatment is a durable type, meaning that the treatment does not have to be renewed each time the fabric is cleaned. Three types of the new finish are offered, in order to supply various hands and finishes for different fibers, including cotton, synthetics, wool and mohair. Mfr: American Cyanamid Co.

Optical bleaches in household soaps and detergents. E. I. Stearns, T. F. Cooke and H. E. Millson. *Calco Tech. Bull. 811,* 15 pages (Oct. 1950).

One of the latest improvements in soaps and detergents is the use of chemical compounds called whitening agents, brighteners, or optical bleaches for the purpose of making laundered fabrics whiter. At first applied chiefly to cotton fabrics, these optical bleaches are now receiving onsiderable attention for possible use on other textile fibers.

Optical bleaches are colorless dyes that fluoresce blue when they are affixed to textile fibers and illuminated with a light source containing ultraviolet light. They impart added whiteness to most off-white products by the double effect of neutralizing the yellow coloration common to most off-whites and increasing the apparent reflectance of white light. In addition, they improve the appearance of blues, violets, purples, pinks, and other colored fabrics that benefit from a reduction of the yellow component. They have a negligible effect on yellows, oranges, reds, and browns. Optical bleaches are found in many different chemical classes having diverse properties. The most important characteristics are: absorption in the ultra-violet, fluorescence in the visual, water solubility or dispersibility, fiber substantivity, and certain stability requirements such as hypochlorite resistance.

Some of the important color and application characteristics are strength, shade, build-up, equilibrium exhaustion, and leveling properties.

Patterned fabrics and processes for producing same. Georges Heberlein & Ernst Weiss (to Heberlein Patent Corp.) USP 2 531 814, Nov. 28, 1950.

A process for producing permanent and wash-resistant pattern effects in cellulosic fabrics, which comprises: pattern printing the fabric with a pigment-containing, wash-resistant, water-insoluble reserve which is permeable to shrinkage agents, and with a parchmentizing agent, drying and heating to fix the pigment and develop the parchmentizing effect, thereby to produce permanent, pigmented and parchmentized pattern areas, and thereafter subjecting at least portions of the fabric, including at least portions of the pigment-printed areas, to treatment with a shrinkage agent, without tension, thereby to impart to the areas so treated, a different sheerness in previously parchmentized but unpigmented fabric portions and shrinkage in previously untreated fabric portions as well as in pigmented but unparchmentized fabric portions.

Preparing rayons for resin finishing. J. M. Schandler. *Can. Tex. J. 67,* 62-3 (Nov. 24, 1950).

Durable resin finishes are important features of the advances made in finishing the past few years. Ureaformaldehyde resins made crease-resistant rayons, lending also properties of water repellency, higher wet strength, and small comparative residual shrinkage. Preparation of fabrics for this finish must be adequate, and some causes of poor preparation are given. Step-by-step treatment of a 50-50 spun viscose-acetate blended fabric is given, showing all finishing processes.

Processes for producing transparentized and crinkled cellulosic fabrics. Georges Heberlein & Ernst Weiss (to Heberlein Patent Corp.) USP 2 531 813, Nov. 28, 1950.

A process for producing permanent and wash-resistant pattern effects in cellulosic fabrics, which comprises: pattern printing the fabric with at least one pigment-containing, wash-resistant, water-insoluble reserve which is substantially impermeable to parchmentizing agents but permeable to shrinkage agents, while leaving all unpigmented areas of the fabric unreserved, subjecting the fabric to overall parchmentizing treatment, thereby to parchmentize all the unpigmented areas, and subjecting at least portions of the fabric, including at least portions of the pigmented areas, to shrinkage treatment without tension, thereby to impart to the areas so treated, shrinkage effects in the pigmented portions and a different sheerness in the parchmentized portions.

Pyroset, fire-retardant finish. Anon. *Am. Wool Cotton Reptr. 64,* 37 (Nov. 23, 1950).

Pyroset, a new durable fire-retardant resin finish for fabrics, will retain its flame-repellant properties after 25 or more dry or wet cleanings. It has little effect on the hand or feel of the fabric, does not irritate the skin, and causes little or no loss in the tensile strength in the fabric after application. Mfr: Am. Cyanamid Co.

Shrinkproofed wool and method of producing same. Martin E. Cupery (to E. I. du Pont de Nemours & Co.) USP 2 526 637, Oct. 24, 1950.

A method of shrinkproofing wool which comprises contacting wool with a solution of a synthetic basis amino polymer of a molecular weight

of at least 1000 having a main polymer chain and containing a plurality of amino groups in which hydrogen is attached to the amino groups in which hydrogen is attached to the amino nitrogen.

Stabilization of regenerated cellulose. Edward C. Pfeffer, Jr. & Jack Epelberg (to Cluett, Peabody & Co., Inc.) USP 2 530 175, Nov. 14, 1950.

The method of stabilizing, against progressive, dimensional shrinkage under repeated washings, a textile material predominantly of regenerated cellulose, which comprises wetting the fibers of the material with an aqueous liquid having a pH between approximately 1.0 and 2.5 and containing a mixture of gloxal in approximately 1.12% to 7.5% by weight in the treating liquid, an aluminum salt which is soluble or readily dispersible in water, and an acid catalyst, the acidic component of which increases in acidity and is not eliminated when concentrated to dryness and subjected to temperatures just above about 212°F. for a time interval inversely related to the temperature, until a substantial reaction product of cellulose and glyoxal is formed in situ in the fibers of the material.

Textile materials made mildew resistant with di —(4-hydroxychlorophenyl) dimethyl methane. Wm. D. Stewart & John H. Standen (to The B. F. Goodrich Co.) USP 2 530 792, Nov. 21, 1950.

A textile material normally subject to destruction or deterioration by mildew rendered resistant to mildew by reason of deposit thereon of a single agent consisting of 0.25 to 1.0% based on the weight of the material of a di-(4-hydroxychlorophenyl) dimethyl methane.

Treatment of cotton fabrics with urea-alkali-zincate solution. Charles L. Mantell & Oscar K. Helm (to United Merchants & Mfrs.) USP 2 527 141, Oct. 24, 1950.

Process of modifying cotton fabric which includes the steps of treating the same with an aqueous solution comprising from about 2 to about 20% by weight of urea, an alkali metal zincate selected from the class consisting of sodium zincate and potassium zincate in an amount equivalent to from about 2 to about 10% by weight of zinc oxide.

Water-repellent textiles and process of making same. John B. Rust (one-half to Montclair Research Corp. and one-half to Ellis-Foster Co.) USP 2 528 554, Nov. 7, 1950.

Water-repellent textile comprising a textile carrying a silicon derivative selected from the group consisting of an alkyl alkoxy silicon and an alkyl silicyl ester fixed thereon by heating at a temperature of 120 to 180° C. in an amount from 1 to 10% to give a light, water-repellent coating without interfering with the breathing property of the textile.

Zirconium chemicals. Part I. Their application to textiles. Warren B. Blumenthal. *Rayon & Syn. Tex. 31*, 81-3 (Dec. 1950).

Zirconium treatments are used on textiles for water repellency, mordanting, and fireproofing. Their special contribution arises from the fact that, when zirconium salts are dissolved in water, they form ions of zirconium that show strong tendencies to adhere to textile fabrics. Most studies of zirconium applications have been superficial and have not gone beyond the most obvious and immediate effects, but numerous further advantages may be offered by the treatments, such as better luster and strength, superior resistance to bacterial and fungus attacks, wear, wrinkling, creasing and shrinking. Eleven references.

TESTING AND MEASUREMENTS G

Clothing and fabrics G 1

A comparison of the breakdown produced by abrasion, using four combinations of wheels and pressures on the Taber Abraser. Margaret H. Zook. *Am. Dyestuff Reptr. 39*, 795-800 (Nov. 27, 1950).

This is the third in a series of reports on methodology studies relating to the testing of textile fabrics for resistance to abrasion. from the laboratory of the Ellen H. Richards Institute, sponsored by the American Viscose Corporation.

A method of measuring penetration and wetting. Charles R. Trommer. *Am. Dyestuff Reptr. 39*, P811-12, 830 (Nov. 27, 1950).

The author describes an apparatus and an experimental technique by which he hopes to separate the phenomenon of the surface wetting of textiles from the penetration of textiles by a wetting solution. The manner in which the rate of penetration of several layers of fabric by an aqueous solution is measured with the authors apparatus is illustrated with two concentrations of a single nonionic wetting agent.

By means of the new apparatus it is hoped that

commercial penetrants can be evaluated for money value, that water repellency can be determined separately from air permeability, that with the electrical part of the apparatus a better endpoint can be obtained in the use of the AATCC rain tester, and that correlation between penetration of a dye assistant and penetration of a dye itself can be studied.

Accelerated aging of fabric—effects of elimination of sunshine on weather—exposed fabric and subsequent deterioration in storage. Julian Maas. *Am. Dyestuff Reptr. 39,* P693-98, 714 (Oct. 16, 1950).

Cotton sheeting was subjected to three forms of weather exposure: (1) All influences, including solar radiation and rain. (2) All influences, but with exclusion of sunshine and rain by a cover. (3) All influences, but with exclusion of sunshine by a slat device.

After exposure for one-, two- and three-month periods of time, the fabric was placed in storage at constant temperature and relative humidity. One-half of the samples were neutralized before storing as a precaution that any change would not be due to extraneous influences while in storage.

Examination was made by established methods, with modifications, for cuprammonium fluidity, breaking strength and sulfuric acid equivalent upon withdrawal of the samples from exposure and after periods of four and eight months' storage.

The deleterious effect of solar radiation was noted and the suggestion offered that other factors, such as temperature changes and wind velocity, may be influences causing deterioration.

Apparatus to measure stress strain. Walther Wegener. *Melliand Textilber. 31,* 668-70 (Oct. 1950); *in German.*

There has hitherto been a lack of a suitable stress-strain measuring apparatus which will record entirely automatically the course of events in endurance tests. In the present article the author describes an apparatus of his own design that works on the principle of reduction of maximum load proportional to the elongation, so that the operator is in a position to record, as desired, both the whole stress-strain process as well as individual pre-determined stresses and the relief of loads. The records made with the apparatus give interesting information on the behaviour of wound and spun yarns that is of interest not only for rayon manufactureres, but also for spinners, weavers and finishers.—Special reference should

be made to the availability of this instrument for endurance tests on tire cords. Its construction and application are simple and it can be made by any laboratory or works with limited means.

Color standards. Chromatic reflectance standards. Anon. *Tech. News Bull. Natl. Bur. Standards 34,* 110-11 (Aug. 1950).

Chromatic reflectance standards for photoelectric reflectometers in the tristimulus colorimetry of reflecting specimens are now available from the National Bureau of Standards. Consisting of porcelain-enamelled iron panels in ten colors, the standards are permanent when handled by the recommended procedures, and should be useful in colorimetry of textile materials of appropriate spectral selectivity.

Conversion of the Saco-Lowell sliver tester to electrical recording. Ralph A. Pusca. *Textile Research J. 20,* 780-6 (Nov. 1950).

The theory and mechanics of converting a Saco-Lowell sliver tester from a graphic-recording instrument to one which records by means of electrical counters are described. General design of the equipment is discussed and photographs of the machine are included. Experience with the converted instrument since March 1949 indicates that it provides a worth-while improvement in accuracy and in speed of analyzing the uniformity of sliver and heavy roving.

Development of reproducible testing technique using the Taber Abraser on rayon fabrics. Margaret Harris Zook. *Am. Dyestuff Reptr. 39,* 679-85 (Oct. 16, 1950).

This is the second in a series of reports on methodology studies relating to the testing of textile fabrics for resistance to abrasion, from the laboratories of the Ellen H. Richards Institute, sponsored by the American Viscose Corporation.

A method of checking and controlling the operation of the Taber Abraser was adapted and used. A cotton unbleached muslin fabric was selected as a control fabric, and a standard control chart was established by means of which the machine performance could be checked each week, and new pairs of wheels could be evaluated for their abrasive quality.

It was observed that variations existed between pairs of wheels. By checking them against a standard, wheels of greater or lesser roughness than that allowed by chance variations could be recognized.

A prelimary study of the reproducibility of results obtained on the Taber Abraser was made,

using an arbitrary method developed as a result of a review of the various test methods in use.
Considerable deviation occurred in the abrasion test results on the rayon fabrics at various cycle stations. This suggested the possibility that variations existed not only between the abrasive wheels, but also within wheels.
The change in technique of mounting the sample and the use of three selected pairs of wheels tended to reduce variations which existed within wheels so that more consistent results were obtained.

Key points necessary for quality control in textile mills. Anon. *Textile Industries 114*, 96 (Dec. 1950).

There is danger that an effective quality control department may control itself out or control itself down to a bare minimum of both personnel and of control applications pyramid rapidly as quality control techniques become more familiar. While first of all requiring technical proficiency, the quality control program still has to be "sold".

Improved combat clothing aim of QM research studies. S. J. Kennedy. *Am. Wool Cotton Reptr. 64*, 103, 121-2 (Nov. 23, 1950).

Results of tests in connection with cold climate clothing show that the disposal of body moisture is probably the most important problem. Four different theories of how to meet requirements for underwear are: the theory of commercial practice; the U. S. Army theory of loose fitting winter underwear; the Brynje principle based on the Norwegian string vest; and the vapor barrier principle. The study of pile materials for insulating layers indicate the reduction in cotton ratio to effective pile content and the use of a non-water-absorptive fiber in the backing. Finally the outer layer of fabric shield should have high wind resistance, high water repellency; and should permit transpiration of body moisture out of the clothing in the form of vapor.

Method of measuring penetration and wetting. Chas. R. Trommer. *American Dyestuff Reptr. 39*, P811-12, P830 (Nov. 27, 1950).

A description of an apparatus and an experimental technique used in an attempt to separate the phenomenon of the surface wetting of textiles from the penetration of textiles by a wetting solution. The manner in which the rate of penetration of several layers of fabric by an aqueous solution is measured with the apparatus is illustrated with two concentrations of a single non-ionic wetting agent.

New Kearny midget psychrometer. Anon. *Am. Wool Cotton Reptr. 64*, 50 (Dec. 7, 1950).

Quick, practical moisture determinations of fibers, yarns and fabrics in mill, dyehouse or laboratory are now possible with a new midget textile psychrometer. Results are reported within an accuracy of one-half of one per cent moisture. Mfr: Kearny Mfg. Co.

Nomograph—calculation of the degree of elongation of fiber during its preparation. Joseph T. Hogan. *Am. Dyestuff Reptr. 39*, 725 (Oct. 30, 1950).

A nomograph for calculating the degree of elongation of fiber during its preparation is presented. An explanation of the theory, method of construction, and use is given. The utilization of only simple algebraic manipulations illustrates that the construction of such charts is as simple as their application and suggests further uses of the method for solution of routine calculations.

Proposed tentative test methods for evaluation of continuous scouring of raw grease wool. Anon. *Am. Dyestuff Reptr. 39*, 813-15 (Nov. 27, 1950).

This specification covers a method for the laboratory evaluation of continuous wool scouring. It is adaptable to the comparison of detergents, builders, and other chemical factors in the scouring operation; and also to the study of mechanical and other control variables, such as temperature, the number of bowls, immersion time, etc. A standard apparatus and set of operating conditions are specified for purposes of calibration. Beyond that, conditions and apparatus may be varied in accordance with the desires of the operator to study any particular system which may exist in his own plant.
The criterion for scouring effectiveness is the extent of grease removal. A rapid method of grease extraction is described as part of this specification.

Progress in continuous dyeing. Anon. *Textile Recorder 68*, 98 (Nov. 1950).

New British specifications on fastness to light introduces eight standard patterns of known fastness to light. The lowest fastness pattern is given a No. 1 rating, while the highest is given the No. 8 rating. In order to measure the fastness of a dyed sample of any shade, it is necessary only to expose it, along with small cuttings of the eight standards, to natural or artificial light.
When the test is complete, the sample is given the fastness number with which it has kept pace in fading.

The British wash-wheel method of testing fastness to wash is said to be a poor one because it does not correspond closely to actual laundry practice. Yarn irregularity tests include the simple comparative blackboard method, and automatic testers.

Recent developments in the testing of textiles. J. Lomax. *Textile Recorder 68,* 99 (Nov. 1950).

See *TTD: 7,* Dec. 1950.

Stress-strain measuring apparatus. W. Wegener. *Melliand Textilber. 31,* 668-70 (Oct. 1950); *in German.*

There has hitherto been a lack of a suitable stress-strain measuring apparatus which will record entirely automatically the course of events in endurance tests. In the present article the author describes an apparatus of his own design that works on the principle of reduction of maximum load proportional to the elongation, so that the operator is in a position to record, as desired, both the whole stress-strain process as well as individual pre-determined stresses and the relief of loads. The records made with the apparatus give interesting information on the behaviour of wound and spun yarns that is of interest not only for rayon manufacturers, but also for spinners, weavers and finishers.

Use of tabular data in the analysis of sliver and roving uniformity. John P. Elting & James C. Barnes. *Textile Research J. 20,* 773-79 (Nov. 1950).

The addition of a data tabulator to any of the current instruments which graphically depicts sliver, roving, or yarn uniformity vastly extends the usefulness of the instrument. The present paper is intended to provide a working outline. It highlights the nature of the fundamental problems which arise as a consequence of the broad sampling and methods made practical by the tabulator. Illustrations are based on the type of tabulator described by Rusca and applied to the Saco-Lowell sliver tester. The subjects discussed are: the function of a tabulator, the type of data made available, the minimum continuous sample length, periodicity of variations within a sample, variations between samples, and evaluation of mill machine performance.

TEXTILE MILLS H

Aberfoyles's new plant. Anon. *Textile Industries. 114,* 95-6 (Dec. 1950).

Efficient yarn processing and finishing characterize Aberfoyle Mfg. Co's Bridgeton, N. J., plant which handles 7,500,000 pounds of yarn annually on a U-shaped production line. Modern equipment is provided for mercerizing, bleaching, gassing, dyeing, winding, and dyeing.

Almost a double century of textile machinery history. B. A. P. Dobson. *Textile Recorder 67,* 88-91 (Oct. 1950).

Major improvements and developments of the last 50 years have produced an entirely new system of blending, opening and cleaning cotton by pneumatic means under continuous electric control, the comber, the delivery box, and high drafting in the carding and spinning rooms. Large package spinning on ring frames has been a gradual development over the years. For example, in 1870, 16's counts were produced on a bobbin with 2 in. lift, 1¼ in. ring, whereas today (in the same mill) the same type of yarn is being produced on 9 in. lift, and with 3 in. rings. More recently, we have witnessed the extensive application of electric control and driving, the development of the short cut process to economize in labor and plant, the reduction of noise and the easement of operative work load.

Since the war when for six years normal research and development of British textile machinery were at a complete standstill—huge efforts have been made and large sums of money have been spent, with the objects of not only catching up with the lost years, but of going much further towards consolidating a predominance of British cotton spinning machinery in world markets.

One of the features of post-war machines is Platt's M.S.2 high draft roving frame, which is equipped with a measuring motion that stops the frame when the required length of roving has been wound on the bobbin. Ease of operation also characterizes this machine. Three push buttons for stopping, starting, and "inching" are placed at convenient intervals down the frame.

Warp and weft preparation—the modern way. W. A. Hanton. *Textile Recorder 67,* 92-5 (Oct. 1950).

Some of the advantages and disadvantages of yarn preparation by modern methods are outlined. Principal machines discussed are the Abbott winder, Barber-Colman spooling and warping, and various filling winders.

Cotton mill men tell how they solve operating problems. Anon. *Am. Wool Cotton Reptr. 64,* 7-8, 16 (Nov. 30, 1950).

This is the second part of a report on the discussion on maintenance of mechanical and electrical machines and devices at the fall meeting of the Northern North Carolina-Virginia Division of the Southern Textile Association. Questions included the reduction of wear on spinning frame journals, bearing arrangements and material used in the journal; loom vibration control; use of automatic valves to save air, etc.

Earnings improve at Collins and Aikman. Anon. *Am. Wool Cotton Reptr. 64*, 9-10, 16 (Nov. 30, 1950).

Lower cost production and correspondingly higher profits have resulted from the use of a new method of production at Collins & Aikman. This new method, the Bird system, is an entirely new and simplified process on the order of a fiber converting system, which will handle any fibers from one inch in length to eight to ten inches, or more, or any combination of these. Better quality with reduced costs are produced because of the efficient machinery, fewer operations, use of less expensive raw stock, maintenance and overhead costs reduced, and yarn quality high enough so that no costly inspection for removal of defects is required.

Efficient production key to industry's defense problems. C. M. Lynge. *Am. Wool Cotton Reptr. 64*, 107, 109, 111, 113, 115 (Nov. 23, 1950).

The physical things that can be done in order to give efficient production include utilizing present facilities to get the best possible layouts and most efficient material flow, active waste control programs, regular machinery maintenance, employee training, etc.

Erwin modernizes a run-down mill. H. M. Rogers, Jr. *Textile World 100*, 104-105, 238, 240, 242, 244, 246, 248, (Dec. 1950).

In 1948 Erwin Cotton Mills bought an obsolete, L-shaped mill at Stonewall, Miss. In two years, Erwin has renovated and rebuilt the property by altering existing structures, adding machinery, and re-routing the course of a stream that stood in the way of logical expansion.

New warehouse uses economical 5-ft. compacted-earth fill that provides base for footings and for 6-in. reinforced-concrete floor, which was poured on 4 inches of packed gravel. Warehouse headroom of 19½ feet permits use of lift trucks for stacking bales of cotton. The floor is pitched from the center toward doors at each side. Underneath

each door sill is a grating-covered trench to handle water from sprinklers or rains. Dry-system sprinklers eliminate the necessity for heat.

Straight-line production flow was setup from rearranged machinery (21,000 spindles and 700 looms). Features of equipment: an overhead lap conveyor system, overhead monorail conveyor cab to transport filling across mill yard, adjustable-pitch sheaves on looms that permit a change to X-2 looms should conditions require it. Smoke clearance in case of small fires may be effected by controls that open outside dampers and close return-air dampers.

Floors made new overnight with durable plastic compound. Anon. *Modern Materials Handling 5*, 57 (Oct. 1950).

Two new plastic type resurfacers "Rexilo" and "Steelhard" can be applied over wood or concrete floor without using metal lath or roughening concrete. According to the manufacturer, salt and chloride do not affect these floorings and intense heat will not cause them to melt. They may be used indoors or out, in warehouses, aisleways, platforms and loading docks. Mfr: The Monroe Co., Inc., Cleveland, Ohio.

Functional selection of synthetic lubricants. R. G. Larsen & A. Bondi. *Ind. Eng. Chemistry 42*, 2421-27 (Dec. 1950).

See front section.

Gear shifting eliminated in two fork truck models. Anon. *Modern Materials Handling 5*, 58 (Oct. 1950).

Two 2,000 lb. capacity fork lift trucks, models "E" and "ER," are equipped with Lev-R-Matic controls which eliminate gear shifting. Stand-up model "E" has a one-piece hood which can be removed without disturbing the instrument panels or electrical connections. This model is specifically designed for easy operation and quick movement. The starter switch is placed so that the operator can depress it with his right knee.

Sit-down model "ER" features a fingertip control parking brake. It has knee-action rear wheels. Four lifting eyes facilitate raising or lowering the truck to docks and platforms.

Each truck has a 3-cylinder heavy-duty air-cooled engine. Double-hinged side panels have been designed for easy maintenance and servicing.

The new models were designed with maintenance in mind. Parts requiring regular servicing are more accessible. These new features make major repairs easier and faster, and are said by the manufacturer to reduce the trucks "down time"

to a minimum. Mfr: Mobilift Corp., Portland, Ore.

Heavy duty sweeper offers improved operator visibility. Anon. *Modern Materials Handling 5,* 55 (Oct. 1950).

Designed for use by airports, heavy industrial plants, manufacturing plants and steamship docks, this manufacturer's model 1000 sweeper has a seat on the front of the unit. Because of this seat placement, the operator can see the complete sweeping area. The sweeper is also equipped with a dust control unit. Mfr: Wilshire Power Sweeper Co., Los Angeles, Calif.

Installation and care of power transformers. Anon. *Textile Mfr. 76* 525-6 (Nov. 1950).

Transformers should be installed so that there is at least three feet of clear space between them, and at least two and one-half feet between a transformer and a wall. These free spaces provide suitable ventilation so as to limit the temperature rise on load. Ample headroom should be provided to permit the raising of cores and windings from the tanks. Where transformers are required to operate in parallel, voltage ratios, secondary voltages, angular phase displacement, and percentage impedence are factors that must be determined carefully. Good care of transformers is outlined briefly. The useful life of a power transformer is estimated at about twenty years, though much older transformers are giving satisfactory service.

Job standards discussed at meeting of S. T. A. Unit. Anon. *Textile Bull. 76,* 52, 54, 56, 58 (Nov. 1950).

On interlocking jobs where one part is measured and the other unmeasured (such as a weaving job on piece rate and a combined battery job on hour rate), two methods of payment were suggested. (1) The amount of payment is not allowed to exceed the previous earning possibility so that the employee will not take unfair advantage of the piece rate portion. (2) A temporary piece rate can be set for the unmeasured portion of the job. As to the question of how closely quality must be supervised when jobs are placed on a measurement basis, nearly all agreed that supervision had to be closely maintained.

Other facts were established by discussion. Card tenders were paid by either net card hour or lap. When job conditions are changed, operators are guaranteed average earnings pending studies that give permanent measurement. No waiting times are allowed doffers while waiting for frames to be doffed, but some consideration is given when

the piece rate is set up. Machine down time is allowed for in wage payments, but under some restrictions. On single-machine operations, the machine has to be down at least five minutes; on multiple-machine setups, the minimum is 15 minutes.

Many developments unveiled at Leicester show. Anon. *Textile World 100,* 116-17, 137 (Dec. 1950).

A transparent spindle base for heavy package uptwisters makes oil level in the spindle, which was run at 12,000 rpm, visible at all times. Other features: full fashioning of women's hosiery on a circular machine; a twin-head full-fashioned machine; a "neversnarl" control unit of interest to winders.

Method and means for measuring and controlling chlorine content of water. Herbert A. Stein. USP 2 526 515, Oct. 17, 1950.

In an apparatus for manipulating the amount of a chemical reagent fed into another substance on the basis of the amount remaining uncombined after a certain period of time: the combination of means for producing a voltage proportional to the amount of the reagent remaining a short time after its addition, means for producing a voltage proportional to the amount of the reagent remaining a longer time after its addition, means for establishing the average difference, over a period of time, between the earlier content and the later content, means for subtracting a voltage representing the average difference between the two readings from the first mentioned voltage representing the amount of the reagent remaining a short time after its addition, whereby to produce in a short time a voltage approximately proportional to the amount of the reagent which would have been found present if the sample to which the first mentioned voltage refers had been retained for the longer period of time, and means for employing the last mentioned voltage for manipulating the amount of the reagent fed into the aforementioned substance.

Printing scale is engineered to "read". Anon. *Modern Materials Handling 5,* 55 (Oct. 1950).

See front section.

Technological trends in textiles. W. H. Slater. *Textile Weekly 46,* 1402, 1404, 1406-7 (Nov. 24, 1950). (Concluded from Nov. 17, 1950 issue)

Universal Winding Company's newest developments feature this report. The use of the Unifil

automatic quill winder as an attachment to the loom eliminates the need for quill-winding rooms, quill handling, and battery filling. The auto-coner, and Abbott's new Unirail uptwister are also described.

Self-centering roller eliminates guide rails on conveyers. Anon. *Modern Materials Handling 5*, 38-9 (Oct. 1950).

See front section.

Solve maintenance problems. Anon. *Am. Wool Cotton Reptr. 64*, 15-16 (Nov. 16, 1950).

A report is presented on the open question and answer forum at a recent meeting of the Northern North Carolina-Virginia Division of the Southern Textile Association. Problems dealing with the maintenance of mechanical and electrical machines and devices in cotton mills, such as size storage and methods to overcome corrosive action; control of condensation in air lines; etc. are discussed.

Textile Division, ASME, begins study of mill modernization. Anon. *Textile World 100*, 103, 278, 282 (Dec. 1950).

All aspects of mill operation are studied by the textile division of the American Society of Mechanical Engineers in order to help mills reduce operating costs and improve quality. The program concentrates first on mills in the south. Results of the analysis will be presented in papers by members of the ASME.

Use of materials handling will speed defense production. N. M. Mitchell, *Am. Wool Cotton Reptr. 64*, 35, 65 (Nov. 23, 1950).

Materials handling has great potentialities in the realignment of mill production to meet tighter time limits and in reducing operating costs. The installation of a materials handling system in the cloth room of one mill resulted in annual savings of $13, 041. The method used in this mill is outlined.

Where does your cost dollar go in manufacturing? Anon. *Textile World 100*, 108-9, 236, 238 (Dec. 1950).

For five typical fabrics, a comparative breakdown of the cost dollar is made for material, labor, administration, expense, social security, selling, and defective goods. The fabrics are cotton print, cotton voile, rayon twill, wool covert, and worsted twill. Raw material cost per yard for 80-square cotton print was 9.86¢ or 50% of the cost dollar. Labor cost of this fabric per yard was 5.56¢, or about 28% of the cost dollar. Raw material and labor costs of 60x52 cotton voile per yard were 5.99¢ and 5.95¢ respectively, or 34% each of the cost dollar. Raw material and labor costs per yard of the 74.6x60 worsted fabric were $2.95 and $1.42 respectively, or 53% and 29% of the cost dollar.

Worsted and woolen mill site selection and construction. Geo. Wrigley, Jr., *Am. Wool Cotton Reptr. 64*, 11-12 (Dec. 7, 1950).

In selecting a site and constructing worsted and woolen mills, future development should be one of the foremost considerations. Regional factors such as labor costs, rail and highway access and costs; water and waste disposal, etc. are discussed; and elements to be considered in the actual construction such as foundations, walls, insulation, floors, etc. are described.

CHEMISTRY AND PHYSICS OF MATERIALS I

Fractionation of cellulose by summative method. Sydney Coppick, O. A. Battista, & M. R. Lytton, American Viscose Corp. *Ind. Eng. Chemistry 42*, 2533-38 (Dec. 1950).

The usual stepwise precipitation or solution methods of fractionating cellulose for chain length determinations are time-consuming, and degradation of the chains frequently occurs. The authors avoid these difficulties in their summative method by carrying out a number of precipitations on separate portions of a solution of cellulose (e.g., in sodium hydroxide). The results are converted, by mathematical methods given, into the usual integral or differential distribution plots. Differential distribution curves are given for several rayons and rayon wood pulps. The distribution was much more heterogeneous in the wood pulps examined than in cotton linters pulp, and the chain length distribution present in the original pulps strongly affected the distribution in the resulting rayons. The effect of aging on wood pulp alkali crumbs, increasing the amount of low D.P. material, was shown by other fractionation data.

German synthetic lubricants. Wm. A. Horne, *Ind. Eng. Chemistry 42*, 2428-36 (Dec. 1950).

The Germans made intensive efforts during World War II to speed the use of synthetic lubricating oils. A brief review of their processes is done in the present article. The oils were chiefly hydrocarbons and nonhydrocarbons, the former being ethylene polymers, the latter almost entirely esters. Tables of structure and properties.